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POTENCY OF MILKS FORTIFIED WITH RESPECT TO ANTIRACHITIC PROPERTIES

CLINICAL TESTS AND A PROPOSED METHOD OF PROCEDURE

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During the past few years there has been developing increasing pressure from various sources to "fortify" natural foods in one way or another, but notably with certain vitamins and mineral salts. There are many aspects of this subject which require the most careful consideration of physicians, nutritionists, health officers and manufacturers of food products, but it is certainly true that, before commercial interests enter largely into this field, many more carefully controlled clinical studies should be made than are now available. It needs to be widely recognized that while the fundamental facts in respect to the rôle of the vitamins and mineral salts in nutrition have been established largely by the use of experimental animals, the accurate application of these facts to man must be determined by clinical studies.[1] Furthermore, it is imperative that an adequate and uniform procedure in investigation be adopted in each field of study by those who may attempt to evaluate clinically the rôle of "fortified" food substances in human nutrition.

The present paper has to do with a proposed standard procedure for the appraisal by clinical tests of milks "fortified" with respect to their antirachitic properties. Largely because of the widespread need throughout a large section of the United States for some measure to prevent rickets and its associated disorders and because of the numerous antirachitic agents and the various methods of giving to foods antirachitic properties, the activity of nutritionists and representatives of food companies and dairies has been especially great in this vitamin D field of food "fortification."

Since rickets is principally a disorder of infancy and since the natural food of infants is milk, the chief concern of the various interested groups is in conferring antirachitic properties on this food. Milk may be used dry, evaporated or in its usual form and may be put on the market in each of these states after having been "fortified" with antirachitic properties. This may be accomplished either by irradiation with ultraviolet energy, by the addition of vitamin D concentrate from cod liver oil or of viosterol (irradiated ergosterol) and by feeding irradiated yeast to cows. Obviously, in this matter many problems—medical, public health and commercial—present themselves; notably, these are the existence and degree of antirachitic potency conferred on the milk, the method of expressing potency in international, Steenbock or other units, the relative biologic merit of the various processes, the effect on other properties of the milk, the practicability and cost of commercial production, and the possibility and feasibility of routine assay and public health control. However, to establish the existence and degree of antirachitic potency for infants of any given "fortified" milk is surely the first and sine qua non requirement in this ever enlarging domain.

Clinical studies may be designed to test the antirachitic value of a given "fortified" milk either by the prevention or by the cure of rickets. Both methods must be used if the antirachitic properties of the milk are to be understood. The preventive type of study has certain advantages and a method of procedure for such is here outlined. Today it is easier to obtain in any one locus a group of normal infants in the period of most active growth—the first few months of life—for a preventive test than to obtain a group of infants each of whom has active rickets of approximately the same degree of severity for a curative test. Roentgenograms must be taken in both "curative" and "preventive" methods of testing potency. In a "curative" test, calcium and phosphorus determinations on the blood serum are also required, since vitamin D curative effect is thereby most delicately and promptly demonstrated. On wide-scale investigations that must be conducted over a considerable period of time, such chemical determinations offer obvious practical difficulties. In "curative" tests, fewer children per group might be required than in "preventive" tests; but to insure a carefully controlled investigation it might be desirable to institutionalize the children in a "curative" study. Such a procedure is not only very costly but may be difficult to carry out. Lastly, the "preventive" test is in line with the fundamental ideal back of the use of a "fortified" vitamin D milk; namely, the routine prevention of rickets in a simple, natural manner which requires no special attention or disturbance on the part of either mother or infant.

PROPOSED METHOD OF PROCEDURE

The proposed method of procedure for making clinical tests of the preventive potency of milks "fortified" with antirachitic properties is as follows:

The studies must be carried out, of course, on artificially fed infants. Groups both of normal and of premature infants must be studied.

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1. Hess, A. F., and Lewis, J. M.: An Appraisal of Antirachitics in Terms of Rat and Clinical Units, J. A. M. A. **101**: 181-184 (July 15) 1933.

At least one half of the normal children should belong to the races especially susceptible to rickets; e. g., Italians and Negroes.

At the time the infants are enrolled in the study group they should be, preferably, under 6 weeks of age —certainly not over 8 weeks—since the first months of life constitute the period of most active growth and the one when rickets most readily develops. The prevention of rickets in children of this age period, next to prevention of the disease in premature infants, is the most rigorous clinical requirement for testing a vitamin D fortified milk; it is by such a test, however, that a milk to be used for the routine prevention of rickets must be judged.

The children should be under observation until they are at least 6 months of age, in some cases longer.

The infants must live in the north temperate zone and the study should be conducted preferably from October to May; infants should not be enrolled who were born prior to the middle of September. This requirement is necessary in order that ultraviolet radiation from sunlight may not enter into the investigation as an important additional antirachitic factor. The mothers of children in the study group should not be instructed to give their infants sun baths, but they cannot reasonably be expected to keep their children continuously indoors. The investigations should be conducted in the winter, since then the factor of sunlight as a contributory antirachitic measure is thus reduced to minimal importance.

No infant should be enrolled who has had previous antirachitic treatment.

No other antirachitic should be given during the investigation than the "fortified" milk under study and the possible unprescribed outdoor ultraviolet irradiation of winter months.

At least fifty infants should be studied in each experimental group; more than this number should be enrolled at the beginning, because a certain number, for one reason or another, will not be followed throughout the duration of the study period.

It is desirable that the infants studied be chosen from well-baby clinics. Infants in institutions such as hospitals or orphanages bring in too often the large factor of infections or slow growth.

The infants must be carefully examined and roentgenograms of wrists and forearms must be taken at intervals of four weeks according to a uniform standardized technic.[2] The primary basis for appraisal in these tests should be changes in the roentgenographic picture; clinical observations are only contributory and supplementary. It is essential that the roentgenograms be interpreted by some person with special experience in this field.

There must be accurate measurements at each examination of the growth of each child in respect to length and weight.

There must be adequate follow-up visits of each infant in its home by a specially instructed nurse. Records must be made of pertinent incidents in the life of each subject, notably the occurrence of infection and other illness. Special attention must be directed toward the care used in preparing the milk mixture given the infant. Accurate record of the amounts of milk taken must be made, for only in this way can the amount of antirachitic substance ingested be determined. It is obvious that this matter of careful follow-up visits by a well trained nurse is of the greatest importance, since failure to prevent rickets might be due to the use of some "unfortified" milk or other food rather than to lack of potency of the antirachitic milk which the child was supposedly taking. In order to minimize errors of this type an adequate amount of the "fortified" milk should be supplied for the entire household of the infant under investigation and strong effort made to have this milk the only kind used by the family.

There must be as great a degree of uniformity in the type of feeding which is prescribed for the infants being studied as is compatible with their well being. The milk mixtures should, if possible, contain the same added carbohydrate in approximately the same relative amounts; likewise the mixtures should contain approximately the same relative amounts of fat. All infants should receive the same antiscorbutic substance, and extraneous vitamin D containing foods, such as egg yolk, must be excluded.

Careful record of all data must be kept.

Each study should be carried out under the direction of an experienced pediatrician with such other assistants as may be required. This director must be able not only to correlate and appraise data but also to inspire assistants and mothers with enthusiastic and intelligent interest. Only in this way can a degree of accuracy be achieved which, while not comparable to that of many laboratory biologic tests, is nevertheless acceptable from a clinical standpoint in the light of our present knowledge.

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2. A roentgen technic that has been found to be satisfactory for examinations of infants' bones is given as appendix C in a report of "The Effect of Tropical Sunlight on the Development of Bones of Children in Puerto Rico," Publication 217, U. S. Department of Labor, Children's Bureau.

PREVENTION OF RICKETS BY MILK FORTIFIED WITH VITAMIN D FROM COD LIVER OIL

(150 STEENBOCK UNITS OF VITAMIN D PER QUART)

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The present study was undertaken for the purpose of testing the antirachitic value for infants of vitamin D concentrate from cod liver oil when it was incorporated in milk at the dairy. Though the concentrate was known to be effective in the treatment of rickets in rats,[1] its efficacy in the prevention and treatment of that disorder in infants as compared with that of cod liver oil was not known. Furthermore, the investigation was considered of special value since it offered an opportunity to elaborate a method of making clinical tests of various substances that contain vitamin D, with a view to comparing their relative efficacy in the prevention of rickets in infants.[2]

The early studies of Barnes, Brady and James [3] showed that viosterol was less effective in infants than

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The cost of this investigation was defrayed in part by a grant from the National Oil Products Company of Harrison, N. J. The milk was supplied by the Brock-Hall Dairy Company of New Haven, Conn.

Some of the material reported in this paper formed the basis for a thesis submitted to the Faculty of the Yale University School of Medicine by T. V. Hynes in candidacy for the degree of Doctor of Medicine.

1. Zucker, T. F.: Further Observations on the Chemistry of Cod Liver Oil, Proc. Soc. Exper. Biol. & Med. **20**: 136, 1922.

2. Eliot, Martha M., and Powers, G. F.: Potency of Milks Fortified with Respect to Antirachitic Properties, this issue p. 1823.

3. Barnes, D. J.; Brady, M. J., and James, E. M.: Comparative Value of Irradiated Ergosterol and Cod Liver Oil as Prophylactic Antirachitic Agent When Given in Equivalent Dosage According to Rat Units of Vitamin D, Am. J. Dis. Child. **39**: 45-58 (Jan.) 1930.

cod liver oil when administered in a like number of rat units. Recent reports by Hess and Lewis [4] define more closely the relative efficacy of cod liver oil, viosterol and certain milks with added antirachitic potency. There still remains, however, considerable confusion as to the amount of various substances, expressed in terms of rat units, necessary for the protection of infants. Since the introduction of various methods for increasing the antirachitic properties of foods and the consequent flooding of the market with many forms of "antirachitic" milk, vegetables, cereals, and so on, the need to develop a method of testing the relative efficacy of these substances for infants has become pressing.

TABLE 1.—*Ages of Infants*

	Number
Over 2 weeks and under 6 weeks	23
Over 6 weeks and under 7 weeks	6
Over 7 weeks and under 8 weeks	2
Over 10 weeks and under 11 weeks	1
Over 12 weeks and under 13 weeks	1

The antirachitic material used in this study was an extract of cod liver oil containing the potent part of the nonsaponifiable fraction, diluted in corn oil for easier and more accurate handling. The material was prepared according to the method of Zucker,[1] by which an extract having 1,000 times the potency of the original cod liver oil was obtained. One hundred and fifty Steenbock rat units of the substance was added at the dairy to each quart of milk.

PLAN OF STUDY

Criteria were laid down in the selection of infants that would allow, as far as possible, a duplication of the study at another time and place. To assure the susceptibility of the subjects, young, rapidly growing, artificially fed infants born during the winter months were sought, preferably from Negro or Italian families. An age limit of 6 weeks was set at first, but later somewhat older infants were accepted, provided the physical and roentgenographic examinations showed no evidence of rickets at the first examination. Since premature infants were known to be most susceptible to rickets, their inclusion in the group was permitted, but it is now believed that separate investigations should be set up for the study of the efficacy of antirachitic substances in this group.

Thirty-three infants were selected for the study. Their ages were as shown in table 1. They were entirely artificially fed and with but one exception, J. A., who was offered two teaspoonfuls of cod liver oil a day for ten days, most of which was lost, they had received no antirachitic substance before enrolment in the group. The racial distribution showed that five were of Negro, sixteen of Italian and twelve of non-Italian white parentage. Nineteen infants were girls and fourteen were boys. The group included three premature infants and two pairs of twins. All were from poor homes and under the care of visiting nurses. All members of the group made their first visit to the clinic between December 14 and March 1; the last roentgenogram of each infant was taken during the month of May. The ages ranged from 17 to 30 weeks at the time of the last physical examination and roentgenogram.

The infants were secured through cooperation of the New Haven Visiting Nurse Association. To insure the infants receiving the milk as directed, all milk for the family was furnished free of charge and contained the vitamin D concentrate. The follow up at home and instructions as to the preparation of food and general care were given by the regular visiting nurse according to the routine used with other infants in the district, except that the mothers were given no instructions about putting the infants outdoors. The clinic was conducted in the New Haven Dispensary. At intervals of four weeks, as nearly as possible, the physician did a physical examination and measured fontanel, head circumference, weight and length. After weighing and physical examination, roentgenograms were taken of both forearms by a special uniform technic. The films were examined currently so that the early evidences of rickets might be observed promptly and appropriate changes made in the regimen if necessary. Chemical determinations of serum calcium and phosphorus were not undertaken.

The feeding was substantially uniform for all infants —undiluted whole milk containing the cod liver oil concentrate and from 8 to 10 per cent of added carbohydrate. Cane sugar was the carbohydrate used as a rule. Six babies were given dark corn syrup instead of cane sugar. For two weeks in January through a misunderstanding 200 units of cod liver oil concentrate was added to each quart of milk used instead of the 150 units originally decided on. Table 2 shows the average amounts of milk reported to have been taken daily at different age levels by the total group studied and by subgroups divided according to the maximum degree of rickets found at roentgen examination during the period of observation. It may be seen that the infants who did not develop rickets and those that developed only slight rickets received on the average about the same amount of milk and consequently about the same number of units of vitamin D at corresponding ages. Comparison shows, however, that in general

TABLE 2.—*Amounts of Milk Reported to Have Been Taken Daily During Specified Age Periods* *

	Amount of Milk Taken Daily in Ounces							
	Total Group of 33 Infants		14 Infants Showing No Rickets		17 Infants Showing Slight Rickets		2 Infants Showing Moderate Rickets	
Age Periods	Average	Range	Average	Range	Average	Range	A. A., Average	F. C., Average
2- 6 weeks	22 oz.	17-26 oz.	23 oz.	17-26 oz.	21 oz.	18-23 oz.	.....	.....
7-10 weeks	23 oz.	18-27 oz.	24 oz.	18-27 oz.	23 oz.	19-26 oz.	19 oz.	21 oz.
11-14 weeks	25 oz.	19-29 oz.	25 oz.	21-28 oz.	26 oz.	20-29 oz.	19 oz.	25 oz.
15-18 weeks	27 oz.	21-32 oz.	27 oz.	22-32 oz.	27 oz.	21-32 oz.	21 oz.	25 oz.
19-22 weeks	28 oz.	21-32 oz.	28 oz.	23-32 oz.	28 oz.	21-32 oz.	25 oz.	27 oz.
23-26 weeks	29 oz.	23-32 oz.	29 oz.	27-32 oz.	29 oz.	22-32 oz.	26 oz.	30 oz.
27-30 weeks	29 oz.	24-32 oz.	30 oz.	.....	29 oz.	24-32 oz.	28 oz.	.....

* By total group of infants and by subgroups divided according to maximum degree of rickets found during period of observation. Amounts shown are the averages and the range for the number of infants followed during each specified age period.

4. Hess, A. F., and Lewis, J. M.: Milk Irradiated by Carbon Arc Lamp: Clinical and Laboratory Study of Rickets, J. A. M. A. 99: 647-653 (Aug. 20) 1932.

somewhat less milk was taken by the two infants who developed a moderate degree of rickets than by the group as a whole. This is of considerable significance, as will be pointed out later.

The milk mixtures were cooked in a double boiler twenty minutes. Orange juice or tomato juice was given from the time of the first visit and cereal added to the diet when the infants were 4 months old. The cereal used was farina and each infant received gruel made from about 20 Gm. of dry cereal daily. Vegetable puree was given when the infants were 5 or 6 months old. The diet offered met all the known nutritional requirements of the infant, with the exception of vitamin D. The only appreciable source of vitamin D in the diet was the cod liver oil concentrate in the milk. There were two instances in which infants received additional amounts of antirachitic substance in the hospital by mistake (U. B. and E. B., table 9).

Goldblatt [5] is of the opinion that the absence of vitamin D is the only important factor in the production of rickets in the infant. Though a diet of low calcium and phosphorus content is essential for production of rickets in the rat, infants develop rickets readily on an adequate mineral intake in the absence of vitamin D. Computation showed that the diet recommended in this study contained what was believed to be an adequate amount of both calcium and phosphorus.

RESULTS OF STUDY

As has been pointed out, evidences of rickets were sought by physical examinations and through roentgenograms of the bones of the forearm repeated at monthly intervals. All of the thirty-three infants had four examinations each, twenty-three had five examinations and eight had six examinations. The infants that did not have the fifth or sixth examination were those enrolled in January or February.

Clinical Signs of Rickets.—Clinical signs of rickets were found in six infants and are given in table 3. In no instance were the clinical signs marked, and all disappeared spontaneously before the end of the study.

Roentgenographic Evidence. — For an investigation of the sort here described it is believed that roentgenographic evidence of the condition of the infant's bones is of much greater value than the clinical evidence obtained at physical examination, since the former is an objective record of progress that can be referred to again and again, whereas the latter is largely a subjective estimate that permits a wide range of error. The evaluation [6] of the condition of the bones shown by roentgenogram was based on standards established during earlier studies in New Haven.[7] The scheme of diagnosis differentiated between bones that showed evidence of active rickets with no visible fresh lime salt deposit—the so-called A type of rickets; bones that showed evidence of active rickets with a greater or less degree of healing indicating that the process was "under control," the so-called B type of rickets; and bones that showed advanced healing, the C type. In addition, the scheme allowed for classification of those bones which were thought to be normal, E, and those which, though probably normal, raised some question or doubt in the examiner's mind, D. The severity or degree of the rachitic process was indicated in the diagnosis as slight or first degree, moderate or second degree and so on.

TABLE 3.—*Clinical Signs of Rickets in Six Infants*

Name	Clinical Signs of Rickets	Maximum Degree of Rickets Found by Roentgen Ray	Age
J. A.	Parietal bossing	Normal	6-22 weeks
V. B.	Slight enlargement of costochondral junction	Normal	14 weeks
F. C.	Enlargement of wrists	Moderate rickets	15-19 weeks
R. H.	? Enlargement of wrists	Normal	9 weeks
H. J.	? Craniotabes, ? enlargement of costochondral junctions	Slight rickets	13 weeks
L. T.	Craniotabes	Slight rickets	15 weeks

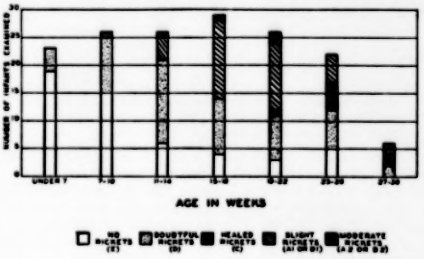

Chart 1—Number of infants examined at each specified age period and roentgen diagnosis made.

Each film taken in the series was studied independently and, after a diagnosis had been arrived at, comparisons were made with the films taken previously. It was believed that the success of the antirachitic treatment should be based on the presence or absence of evidence of rickets in any one of the films in each individual series, on the severity of the process at any time and on the tendency for the process to recede without change in the daily regimen. Study of the roentgenograms for the thirty-three infants showed that the maximum degree of rickets found at any time during the period of investigation was as follows: no rickets, one; doubtful diagnosis (considered normal), thirteen; slight rickets, seventeen; moderate rickets, two.

Chart 1 shows the number of infants examined at certain specified age levels and the roentgen diagnoses at each age. The shift in the majority of diagnoses with advancing age from normal to doubtful and then to slight or moderate rickets and the ultimate receding of the disease can be seen.

The course of the rachitic process has been plotted for each of the nineteen infants who at some time during the period of observation developed roentgenographic evidence of rickets and is shown in chart 2. It will be seen that during the period of observation healing occurred in the case of the two infants who developed moderate rickets (F. C. and A. A.), demonstrating that they were in no sense "refractory" cases. Of the seventeen infants with slight rickets, ten showed advanced healing or normal bones at the last observation, four were definitely under control, and three were still too young at the last examination to determine whether the process was still active or adequately con-

5. Goldblatt, H.: Die neure Richtung der experimentellen Rachitisforschung, Ergebn. de allg. Path. u. path. Anat. **25**: 58-491, 1931.

6. Interpretations of the roentgenograms were made with the assistance of Dr. Martha M. Eliot of the Pediatric Department, Yale University School of Medicine, and the Children's Bureau of the United States Department of Labor.

7. Eliot, Martha M.: The Control of Rickets: Preliminary Discussion of the Demonstration in New Haven, J. A. M. A. **85**: 656-663 (Aug. 29) 1925.

trolled. The case histories of the two infants who developed moderate rickets were as follows:

F. C. was a normal, full term, rapidly growing male infant whose mother was Polish. He was first seen at 5 weeks of age and not again until 11 weeks, at which time a roentgenographic diagnosis of moderate rickets was made. During this interval he had gained 1,840 Gm. on an average of 21 ounces of milk daily* (111 rat units of vitamin D). From the eleventh to the fifteenth week he gained 750 Gm. in weight on 23 ounces of milk daily (108 units). The rapidity of gain of this infant was, however, no greater than that of certain other infants who did not show more than a slight degree of rickets, but the quantity of milk taken daily was less. F. C. was an illegitimate child and soon after the third roentgen examination was removed from his home to an institution. Almost at once he developed acute otitis media. Furthermore, from the fifteenth to the nineteenth week, though he was receiving 25 ounces of milk daily (118 units) he gained only 200 Gm. From the nineteenth to the twenty-fourth week he again gained 750 Gm. and was receiving 30 ounces of milk daily (141 units). As will be pointed out later, it is believed that the simultaneous decrease in rate of growth after the fifteenth week and the increase in the amount of milk taken at this time together so increased the number of units of vitamin D consumed daily per unit of growth that healing of the rachitic process was brought about.

A. A., the other infant who developed a moderate degree of rickets, was of Italian parentage and, though he looked like a premature infant, was said to have weighed 2,600 Gm. at birth. At the first examination, at 7 weeks of age, he weighed 2,500 Gm. He gained in weight rapidly and consistently, reaching 6,300 Gm. at 21 weeks of age, when the diagnosis of moderate rickets was made. As he was smaller than the average, the total amount of milk taken and consequently the total amount of antirachitic vitamin was less than that taken by others in the group. Later not only was his growth somewhat slower but he also received more milk, as can be seen from table 2.

Growth and Development.—The progress and general development of the infants on the regimen described was apparently normal and satisfactory. Table 9 gives the data obtained at each examination, showing age, weight, length, roentgenographic diagnosis and the average number of rat units of vitamin D received daily in the periods between roentgen examinations.

All the infants had attained at least the average length and weight for their ages before the end of the study.

Table 4 shows the average weekly gain in weight and growth in length during periods of about four to six weeks between successive roentgen examinations. Each figure represents the average gain taking place during the four to six weeks period just preceding those examinations that fell within the specified age range. The average gains for the total group are shown and for subgroups divided according to the maximum degree of rickets found during the period of observation. It will be seen that the infants who were found to have slight rickets gained weight more rapidly on the average than did those who showed no rickets and also grew on the whole somewhat faster in length. Of the two infants who developed moderate rickets, one (A. A.) gained weight throughout the period of observation considerably faster than the average for the group as a whole and also grew faster in length. The other infant (F. C.) gained in weight rapidly up to the fifteenth week and then, coincident with otitis media, gained very slowly for a month. Between the nineteenth and twenty-fourth weeks the gain in weight was again more rapid. The growth in length made by this child (F. C.) was greater during the early weeks than that of the total group.

TABLE 4.—*Average Weekly Gain in Weight and Length* *

Age in Weeks at Second and Subsequent Examinations	Total Group (33 Infants)		Maximum Degree of Rickets Found by Roentgen Ray During Period of Observation									
			No Rickets (14 Infants)		Slight Rickets (17 Infants)		Moderate Rickets (2 Infants)					
							A. A.,		F. C.,			
	No. of Children	Average Weekly Growth in:	No. of Children	Average Weekly Growth in:	No. of Children	Average Weekly Growth in:	Average Weekly Growth in:		Average Weekly Growth in:			
		Weight	Length		Weight	Length	Weight	Length	Weight	Length	Weight	Length
3- 6	5	229 Gm.	9 mm.	2	215 Gm.	9 mm.	3	238 Gm.	9 mm.	.....	.....	.....	.....
7-10	17	253 Gm.	8 mm.	8	245 Gm.	7 mm.	9	256 Gm.	8 mm.	.....	.....	.....	.....
11-14	28	214 Gm.	8 mm.	13	175 Gm.	8 mm.	13	237 Gm.	8 mm.	333 Gm.†	‡	307 Gm.†	12 mm.
15-18	32	180 Gm.	6 mm.	13	156 Gm.	5 mm.	17	194 Gm.	7 mm.	242 Gm.	7 mm.	188 Gm.	‡
19-22	22	137 Gm.	6 mm.	6	80 Gm.	6 mm.	14	160 Gm.	5 mm.	253 Gm.	13 mm.	50 Gm.	6 mm.
23-26	20	140 Gm.	4 mm.	7	133 Gm.	3 mm.	11	141 Gm.	4 mm.	167 Gm.	8 mm.	130 Gm.	2 mm.
27-30	6	123 Gm.	3 mm.	1	130 Gm.	3 mm.	4	111 Gm.	4 mm.	164 Gm.	3 mm.	.....	.....

* Figured for periods of approximately four to six weeks immediately preceding the second and each subsequent roentgen examination; infants arranged according to maximum degree of rickets found by roentgen examination during period of observation.
† Second examination was at 11 weeks; the average gain for A. A. covered a period of four weeks, that for F. C. a period of six weeks.
‡ Length not reported.

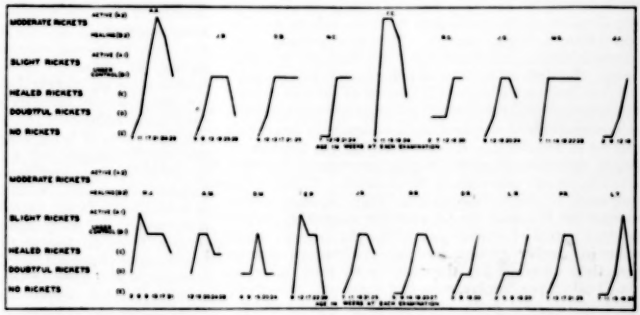

Chart 2.—Roentgen diagnosis at specified age periods for nineteen infants who developed rickets during the period of observation.

8. For two weeks during this period, milk containing 200 units per quart was given by mistake.

The musculature and general appearance of all the infants was excellent at the end of the study. Of the fourteen infants who reached an age of 26 weeks or more at the last examination, nine sat alone well and five sat with support; four had two or more teeth, ten had none. The fontanels diminished in size in each case and the heads increased in circumference at the normal rate.

The incidence of infections between January and May, while apparently high, did not seem excessive for children from homes with poor hygienic conditions. On the whole the infants with infections did as well as other children in the hospital and dispensary service at the time, and recovery in every case was complete and uneventful. During the five months of the study, infections occurred among the thirty-three infants as shown in table 5.

Relation of Amount of Vitamin D Taken and of Growth to Development of Rickets. — The average number of units of vitamin D taken daily during successive periods of approximately four to six weeks each has been calculated from the quantity of milk consumed and the figures are given in table 6 for the total group of infants and for the three subgroups, arranged according to roentgen diagnoses. As in table 4, the periods used for calculation are those occurring between successive roentgen examinations. There was practically no difference in the average total amount of vitamin D taken daily by infants with no rickets and by those with a slight degree. The two infants with moderate rickets apparently took less than the average, though the differences are not striking. Since, however, the amount of vitamin D needed to prevent rickets depends, in all probability, on the rate of growth, further analysis of the data has been made to determine whether a relationship existed between the growth in weight and in height, the degree of rickets observed and the amount of vitamin D received. Calculations were made of the number of units taken by each infant between the first and second roentgen examinations per hundred grams of weekly gain in weight and per millimeter of weekly growth in length. Average figures were then obtained for the number of units of vitamin D taken per weekly gain in weight and growth in length by the total group of thirty-three infants and by the three subgroups arranged according to the roentgen diagnoses. Similar calculations were made of the number of units taken by each infant between subsequent examinations and the number related to age, the gain in weight, the growth in length and the diagnosis of rickets.

Table 5.—*Occurrence of Infections*

	Number of Cases
Chickenpox (in April and May)	3
Infections of upper respiratory tract with bronchopneumonia, one complicated by erysipelas	4
Infections of upper respiratory tract with otitis media	3
Diarrhea (one in February, one in May)	2
Prolonged rhinopharyngitis (in March)	1
Acute bronchitis (in March)	1
Whooping cough	1
Scabies	1

Table 7 shows the average number of units of vitamin D taken daily per hundred grams weekly gain in weight between successive roentgen examinations. It will be seen that in general the average number of units per hundred grams weekly gain in weight taken by those children who showed no rickets is somewhat higher than the average number of units per weekly gain taken by those who showed slight rickets. Furthermore, it is considerably higher than the number of units taken per weekly gain in weight by the two infants who developed moderate rickets, with the one exception of the amount taken by F. C. in the period preceding the examination at 19 weeks of age. The abrupt slowing in gain in weight that occurred at that time (as mentioned in the case history) accounts for the large number of units of vitamin D taken per hundred grams gain in weight and, in all probability, for the fact that healing of the rachitic process also began at this time. In each group of infants, as would be expected, the amount of vitamin D taken per unit of gain in weight increased with increase in age. This is explained not only by an increase in the amount of milk consumed but also by the fact that gain in weight had become slower.

Table 8 shows similar data except that the units of vitamin D are calculated per millimeter of weekly growth in length. A similar relationship is shown between the amount of vitamin D received per millimeter of growth in length and the maximum degree of rickets found during the period of observation, but it is somewhat less striking than that shown in table 7.

COMMENT

Bills, Honeywell, Wirick and Nussmeier [9] have analyzed the roentgenograms of approximately 5,000 rats treated in routine assays of material that contained vitamin D. By estimating the amount of healing indicated by the line test and comparing it with a photographic standard graduated in degrees 1 to 8, they worked out a quantitative relationship between the degree of healing and the number of units of vitamin D administered. Hume, Pickersgill and Gaffikin [10] compared the ash content of the bones of rats with the amount of vitamin D administered in a curative test and were also able to demonstrate a relationship between the number of units administered and the amount of healing produced. In the study of infants here reported no attempt has been made to arrive at any such numerical relationship, because of the small number of cases. The development of more than a mild degree of rickets in two infants is not, in our opinion, a wholly satisfactory result under the rigorous conditions necessary for testing a rickets preventing substance that is being considered for widespread general use. Because of the spontaneous healing that occurred in these two cases when the rate of growth became slower and the amount of milk increased, it is believed that a larger amount of the vitamin D concentrate would in all probability have kept the rachitic process from advancing to a moderate degree. How much more vitamin D in the form of vitamin D concentrate of cod liver oil would be needed to prevent the development of rickets — at least that of a moderate degree—can be determined only by further clinical tests.

SUMMARY

1. A clinical study was made of the rickets-preventing efficacy of milk fortified with 150 Steenbock units of vitamin D per quart in the form of a cod liver oil concentrate.

9. Bills, C. E.; Honeywell, Edna M.; Wirick, Alice M., and Nussmeier, Mildred: A Critique of Line Test for Vitamin D, J. Biol. Chem. **90**: 619-636 (Feb.) 1931.

10. Hume, Eleanor M.; Pickersgill, Margaret, and Gaffikin, Mary M.: The Determination of Vitamin D: Relationship Between Graded Doses of Standard Solution of Vitamin D, Administered to Young Rats on Rachitogenic Diet, and Ash Content of Their Bones, Biochem. J. **26**: 488-505 (No. 2) 1932.

2. Thirty-three artificially fed infants, most of whom were under 8 weeks of age at the beginning of the study in December 1932 and two thirds of whom were Negroes or Italians, were selected for the study and were given this milk as the sole source of vitamin D. They were observed over periods of from three to six months, the last examination having been made in May. received showed that, though the infants who developed slight rickets grew somewhat faster than did those who remained normal, they nevertheless did not receive on the average more milk daily or more vitamin D. Moreover, the two infants who developed moderate rickets not only took less milk daily than did the group as a whole but also grew considerably faster. Further-

TABLE 6.—*Average Number of Units of Vitamin D Taken Daily* *

Age in Weeks at Second and Subsequent Examinations	Total Group (33 Infants)		Maximum Degree of Rickets Found by Roentgen Ray					
			No Rickets (14 Infants)		Slight Rickets (17 Infants)		Moderate Rickets (2 Infants)	
	Number of Children	Average Number of Units of Vitamin D	Number of Children	Average Number of Units of Vitamin D	Number of Children	Average Number of Units of Vitamin D	Average Number of Units of Vitamin D	Average Number of Units of Vitamin D
2- 6	5	103	2	105	3	101	...	...
7-10	17	105	8	103	9	106	80	111
11-14	28	123	13	122	13	127	80	111
15-18	32	126	13	128	17	126	111	110
19-22	22	131	6	128	14	133	120	120
23-26	20	135	7	137	11	135	122	141
27-30	6	136	1	140	4	136	132	...

* Figured for periods of approximately four to six weeks immediately preceding the second and each subsequent roentgen examination; infants arranged according to maximum degree of rickets found by roentgen examination during period of observation.

TABLE 7.—*Average Number of Units of Vitamin D Taken Daily per Hundred Grams of Weekly Gain in Weight* *

Age in Weeks at Second and Subsequent Examinations	Total Group (33 Infants)		Maximum Degree of Rickets Found by Roentgen Ray During the Period of Observation					
			No Rickets (14 Infants)		Slight Rickets (17 Infants)		Moderate Rickets (2 Infants)	
							A. A.,	F. C.,
	Number of Children	Average Number of Units Vitamin D Taken Daily per 100 Grams Weekly Gain in Weight	Number of Children	Average Number of Units Vitamin D Taken Daily per 100 Grams Weekly Gain in Weight	Number of Children	Average Number of Units Vitamin D Taken Daily per 100 Grams Weekly Gain in Weight	Average Number of Units Vitamin D Taken Daily per 100 Grams Weekly Gain in Weight	Average Number of Units Vitamin D Taken Daily per 100 Grams Weekly Gain in Weight
2- 6	5	50 units	2	49 units	3	51 units	.....	.....
7-10	17	42 units	8	44 units	9	41 units	.....	.....
11-14	28	68 units	13	86 units	13	56 units	27 units	36 units
15-18	32	87 units	13	97 units	17	80 units	46 units	59 units
19-22	21†	110 units	5†	147 units	14	92 units	47 units	240 units‡
23-26	20	119 units	7	140 units	11	113 units	73 units	94 units
27-30	5†	97 units	1	108 units	3†	99 units	81 units	.....

* Figured for periods of approximately four to six weeks immediately preceding the second and each subsequent roentgen examination; infants arranged according to maximum degree of rickets found by roentgen examination during period of observation.
† One child did not gain.
‡ Child developed otitis media at 15 weeks and ceased gaining rapidly.

TABLE 8.—*Average Number of Units of Vitamin D Taken Daily per Millimeter of Weekly Growth in Length* *

Age in Weeks at Second and Subsequent Examinations	Total Group (33 Infants)		Maximum Degree of Rickets Found by Roentgen Ray During the Period of Observation					
			No Rickets (14 Infants)		Slight Rickets (17 Infants)		Moderate Rickets (2 Infants)	
							A. A.,	F. C.,
	Number of Children	Average Number of Units Vitamin D Taken Daily per Mm. Growth in Length	Number of Children	Average Number of Units Vitamin D Taken Daily per Mm. Growth in Length	Number of Children	Average Number of Units Vitamin D Taken Daily per Mm. Growth in Length	Average Number of Units Vitamin D Taken Daily per Mm. Growth in Length	Average Number of Units Vitamin D Taken Daily per Mm. Growth in Length
2- 6	5	16 units	2	15 units	3	17 units	.....	.....
7-10	17	24 units	8	25 units	9	23 units	.....	.....
11-14	27	18 units	13	21 units	13	16 units	.....	10 units
15-18	31†	25 units	12†	31 units	17	21 units	17 units	.....
19-22	20‡	25 units	5†	30 units	13†	30 units	10 units	19 units
23-26	18‡	43 units	5‡	52 units	11	39 units	15 units	71 units
27-30	6	47 units	1	56 units	4	45 units	44 units	.....

* Figured for periods of approximately four to six weeks immediately preceding the second and each subsequent roentgen examination; infants arranged according to maximum degree of rickets found by roentgen examination during period of observation.
† One child did not gain.
‡ Two children did not gain.

3. Of the thirty-three infants, fourteen remained normal, seventeen developed slight rickets during the period of observation and two a moderate degree of rickets. These diagnoses were made from roentgenograms taken at monthly intervals during the study.

4. Analysis of the data that had to do with the degree of rickets observed, the growth in weight and length, and the amount of milk and hence of vitamin D more, when the number of units of vitamin D taken daily per hundred grams of weekly gain in weight was correlated with the degree of rickets, it was found that the average number of units taken by the nonrachitic infants was somewhat greater than the average number taken by those who showed slight rickets and considerably greater than the number taken daily by the two infants who developed moderate rickets.

TABLE 9.—*Data Obtained at Time of Roentgen Examination for Each Child Included in the Study*

Child			Birth Weight, Gm.	First Examination				Second Examination				Third Examination				Fourth Examination				Fifth Examination				Sixth Examination				Clinical Manifestations	Comments
				Age, Weeks	Length, Cm.	Weight, Gm.	X-Ray Diagnosis	Age, Weeks	Length, Cm.	Weight, Gm.	Vitamin D Units Daily	X-Ray Diagnosis	Age, Weeks	Length, Cm.	Weight, Gm.	Vitamin D Units Daily	X-Ray Diagnosis	Age, Weeks	Length, Cm.	Weight, Gm.	Vitamin D Units Daily	X-Ray Diagnosis	Age, Weeks	Length, Cm.	Weight, Gm.	Vitamin D Units Daily	X-Ray Diagnosis	Age, Weeks	Length, Cm.	Weight, Gm.	Vitamin D Units Daily	X-Ray Diagnosis		
J. A.	White	♀	3,860	10	60.5	5,140	E	14	62.0	5,700	113	E	18	64.0	6,400	103	D	22	67.0	6,930	108	D	26	68.0	7,400	128	D	30	69.0	7,930	140	D	Parietal bossing 10 to 22 weeks	Offered cod liver oil 1 teasp. b. d. 10 days before admission; most of it lost
A. A.	Italian	♂	2,600	7	50.4	2,500	E	11	....	3,830	90	D	17	57.0	5,280	111	A-1	21	62.0	6,300	120	A-2	24	64.5	6,800	122	B-2	29	66.0	7,630	132	B-1	.....	Probably premature
J. B.	White	♂	.....	5	47.0	2,200	E	9	52.0	3,450	108	D	13	56.0	4,640	150	B-1	18	60.0	5,850	141	B-1	25	61.0	6,960	141	B-1	29	65.0	6,900	141	D	.....	Chickenpox at 26 weeks
U. B.	Italian	♂	3,150	5	51.5	3,400	E	10	53.5	4,100	77	D	14	58.0	5,010	125	E	23	63.0	6,740	128	E	..	....	.....	...	..	..	....	.....	...	..	Slight enlargement of costochondral junctions at 14 weeks	In hospital 2 weeks for dorsal slit at 6 to 8 weeks; no vitamin D for 2 weeks; pneumonia at 18 weeks; received 1 ounce of cod liver oil in 4 days
E. B.	White	♂	2,700	6	52.0	3,300	E	10	55.0	4,280	105	D	12	58.0	4,780	110	D	17	60.0	5,080	140	D	..	....	.....	...	..	..	...	.....	...	..	? Craniotabes at 13 weeks; blood Ca, 13.2 Mg.; P, 5.7 Mg.	Otitis media 10 to 18 weeks; received 1½ ounces of cod liver oil and 60 drops of viosterol in 6 days
R. B.	White	♂	4,330	4	56.5	5,040	E	10	61.0	6,300	109	D	15	64.0	7,150	125	D	17	65.0	7,260	131	E	..	....	.....	...	..	..	....	.....	...	..	.....	Otitis media for 2 weeks at 12 weeks
D. B.	White	♂	5,000	6	62.0	5,360	E	10	63.0	6,480	108	D	13	66.0	7,030	108	B	17	68.0	7,650	130	B-1	21	68.0	8,160	130	B-1	25	70.5	8,510	130	B-1		
N. C.	Italian	♂	.....	7	53.0	4,700	E	12	58.0	5,850	130	E	16	62.0	6,700	130	R	21	64.0	7,270	141	B-1	24	65.0	7,200	141	B-1							
F. C.	Italian	♀	.....	5	51.0	3,300	E	11	56.0	5,200	111	A-2	15	59.0	5,950	110	A-2	19	63.0	6,150	130	B-2	24	64.0	6,900	141	C-2	..	....	.....	...	..	Wrists enlarged at 15 weeks, normal at 24 weeks	Otitis media at 16 weeks; transferred to nursery because of poor home
W. D.	White	♂	3,740	8	60.0	4,900	E	14	64.0	6,080	114	E	18	67.0	6,850	120	D	22	67.0	7,000	131	E	25	68.0	7,480	150	E	..	....	.. ..	...	..	.....	Diarrhea 2 days at 9 weeks
R. G.	Italian	♀	2,700	2	47.5	2,730	D	7	52.0	4,000	96	D	12	57.0	5,450	122	D	16	60.0	6,310	135	B-1	20	61.0	7,000	141	B-1							
J. G.	Italian	♀	.....	6	54.0	4,330	E	12	58.0	5,800	128	D	16	61.0	6,700	122	B	20	63.0	7,420	150	B-1	24	64.0	8,070	150	C-1							
M. G.	Italian	♀	2,600	7	54.0	3,700	E	11	56.5	4,950	108	B-1	14	58.5	5,610	122	B	18	61.0	6,310	165	B-1	22	62.0	6,600	122	B-1	26	64.5	7,510	140	B-1	.....	Congenital clubfoot
D. H.	White	♀	3,300	4	52.0	3,450	E	9	57.0	4,680	115	D	15	62.0	6,030	117	D	18	60.5	6,200	141	D	..	....	.....	...	..							
R. H.	Negro	♂	3,520	4	56.0	4,470	D	8	59.0	5,900	122	E	12	63.5	7,150	131	E	16	65.0	7,950	131	E	..	....	.....	...	..	..	....	.....	...	..	? Enlarged wrists 12 to 16 weeks	
J. J.	White	♀	2,600	2	48.0	2,700	E	6	51.0	3,500	105	E	12	57.0	4,670	125	D	16	58.0	5,180	128	B	..	....	.....	...	..	..	....	.....	...	..	.....	Twin
J. J.	White	♀	2,700	2	50.0	3,040	E	6	52.0	3,850	105	D	12	56.0	4,820	125	D	16	60.5	5,700	125	D	..	....	.....	...	..	..	....	.....	...	..	.....	Twin
H. J.	Italian	♂	.....	2	48.5	2,200	D	6	52.5	3,650	92	A-1	9	56.5	4,460	102	B	13	58.0	5,150	95	B-1	17	60.5	5,830	103	B-1	21	63.0	6,240	105	C-1	? Craniotabes at 9 weeks; ? costochondral junction at 13 weeks	Chickenpox at 18 weeks
A. M.	Italian	♀	2,350	12	55.5	4,600	D	16	59.0	5,700	116	B-1	20	63.0	6,530	100	B	24	64.0	7,360	100	C-1	28	64.5	7,680	110	C-1	..	....	.....	...	..	.....	Cervical adenitis, otitis media, pharyngitis, bronchopneumonia, erysipelas 24 to 28 weeks
L. M.	Italian	♀	.....	4	57.5	3,850	E	8	58.0	4,800	112	E	12	61.0	5,210	153	D	17	63.0	6,080	150	D	22	67.0	6,000	150	D	26	67.5	7,120	150	D	.....	Pharyngitis 4 to 8 weeks
D. M.	Negro	♀	2,280	4	53.0	3,400	D	9	56.5	5,010	113	D	15	60.0	5,770	122	B-1	20	62.0	6,220	122	D	24	64.0	6,580	131	D	..	....	.....	...	..	.....	Chickenpox 16 weeks
E. P.	White	♀	2,870	8	56.2	4,200	E	12	60.0	5,550	142	A-1	17	64.0	6,650	135	B-1	22	66.0	7,600	141	B-1	28	69.0	8,020	141	E	..	....	.....	...	..	.....	Whooping cough 21 to 27 weeks
J. R.	White	♂	3,320	7	53.5	4,180	E	11	57.0	5,050	134	D	16	60.0	5,900	134	B-1	21	63.5	6,700	131	B-1	25	65.0	7,250	131	C-1	..	....	.....	...	..	.....	Diarrhea for 5 days at 22 weeks
D. R.	Negro	♀	.....	5	54.5	4,540	E	11	58.5	5,580	138	E	16	60.5	6,050	125	E	21	63.0	6,570	125	D	24	63.0	6,740	125	D							
R. R.	Negro	♀	2,610	5	51.0	3,350	E	9	51.5	4,250	110	E	14	57.0	5,000	142	D	18	59.0	5,680	131	B-1	23	60.0	6,070	140	B-1	27	61.5	6,850	150	C-1		
D. R.	Italian	♀	3,150	3	49.0	3,300	E	9	53.0	4,450	95	D	16	60.0	6,230	125	D	20	62.0	7,000	150	B-1												
L. R.	Italian	♀	2,660	2	47.5	2,580	E	5	48.5	2,670	106	D	9	53.0	3,540	115	D	16	59.0	5,570	130	D	20	61.0	6,250	150	B-1							
M. R.	Italian	♂	4,870	6	56.0	4,300	E	11	58.0	5,010	108	E	16	60.0	5,630	131	E	21	64.0	6,000	125	E	24	63.0	6,580	131	E	..	....	.....	...	..	.....	Severe rhinopharyngitis 18 to 21 weeks
V. R.	Italian	♀	2,700	4	51.7	2,980	E	8	53.0	3,750	107	D	15	59.0	4,920	107	D	19	61.0	5,470	131	E	22	63.0	5,610	140	E	..	....	.....	...	..	.....	Bronchitis 10 to 12 weeks; otitis media 20 weeks
P. R.	Italian	♂	.....	7	49.0	3,400	E	13	57.0	5,000	139	D	17	59.0	5,770	150	B-1	21	62.0	6,380	150	B-1	25	63.0	6,820	150	D	..	....	.....	...	..	.....	Otitis media 8 to 12 weeks; pneumonia 22 to 24 weeks
M. T.	Negro	♀	3,150	2	50.0	2,900	E	7	55.0	4,200	80	D	13	59.0	5,580	100	D	17	63.0	6,400	120	D												
M. T.	Polish	♀	2,900	2	49.5	3,200	E	6	54.5	4,100	105	E	15	60.5	5,270	120	D	17	61.0	6,100	131	D												
L. T.	Italian	♀	3,150	7	49.7	3,030	E	11	52.0	3,900	115	E	15	56.0	5,110	115	D	19	58.0	6,150	128	A-1	22	61.5	7,020	128	D	..	....	.....	...	..	Craniotabes 15 weeks	Scabies 22 weeks

5. Coincident with a slowing in the rate of growth and an increase in the amount of milk consumed by these two infants there occurred an increase in the number of units of vitamin D taken daily per hundred grams of weekly gain in weight and, as a result, healing of the rachitic process took place.

CONCLUSIONS

Since the amount of vitamin D necessary to prevent rickets is probably dependent to a great extent on rate of growth and since the growth of young infants does not necessarily conform to the amount of milk consumed daily, it is clear that infants who gain rapidly on relatively small amounts of milk will not receive an adequate amount of vitamin D from a fortified milk unless the amount of vitamin incorporated per quart is such that protection will be afforded when considerably less than a quart is consumed. If, therefore, milk is to be relied on for the sole supply of vitamin D during the period of most rapid growth, it would appear that the minimum amount likely to be consumed during the first four months of life—approximately a pint—should contain an amount of vitamin D adequate to protect the normal rapidly growing infant. It would appear from the data here presented that the addition to one quart of milk of 150 Steenbock units of the vitamin D concentrate used did not furnish enough vitamin D to prevent the development of a moderate degree of rickets in two out of the thirty-three infants studied. How many units of this vitamin D concentrate per quart would be required to protect completely all normal infants can be determined only by further study.

DETERMINATION WHETHER KETONURINE HAS BACTERICIDAL ACTION

A SIMPLE TECHNIC FOR CLINICAL USE

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In a previous paper we reported, from chemical and bacteriologic data, that a minimal standard of p_H and concentration of beta-hydroxybutyric acid could be set up for a ketonurine, and that if ketonurine met this standard it might be expected that it would prove to be bactericidal. These standards are a p_H of 5.5 or less and a concentration of beta-hydroxybutyric acid of 0.5 per cent or greater. If these conditions are fulfilled, the urine is bactericidal to numerous strains of colon bacilli. If this standard is exceeded by a decrease in p_H value or an increase in concentration of beta-hydroxybutyric acid, or both, it may be expected that the bactericidal action will be greater and the urine will be rendered sterile in a shorter length of time. The previous work involved the determination of the p_H value of urine by ordinary colorimetric procedures and the determination of beta-hydroxybutyric acid by the somewhat tedious, van Slyke, gravimetric procedure. Obviously, it is to be desired that a simple procedure be made available whereby the clinician can determine easily whether or not this standard has been reached or exceeded. A technic by which one can determine this is presented.

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The colorimetric determination of the p_H is simple and perhaps needs no further simplification, since this determination is commonly used. However, it can be determined whether or not the p_H of the urine is 5.5 or less even more simply by the use of chlorphenol red paper. Filter paper of good grade that has been soaked in an aqueous solution of chlorphenol red of a concentration of 0.04 per cent, and then dried, becomes yellow. Such a test paper will turn red at a p_H above 5.5. Hence, for determining whether the p_H of the urine is less than 5.5, it is necessary only to see that such paper, when wetted with the urine, retains its yellow color. At the borderline of p_H 5.5 a slight orange tint may be present, but if the p_H is greater than this a distinct red is produced. Consequently it is necessary only that the urine shall not be capable of turning the test paper red; this will insure that the standard of p_H has been reached and that the p_H of the urine is sufficiently low for bactericidal action, if the concentration of beta-hydroxybutyric acid is 0.5 per cent or more.

TABLE 1.—*Relationship of Concentration of Acetone and Diacetic Acid to Concentration of Beta-Hydroxybutyric Acid in Ketonurine (Series 1)*

Case	Beta-Hydroxybutyric Acid, per Cent (van Slyke Method)	Acetone Bodies Present as Beta-Hydroxybutyric Acid, per Cent (Calculated as Acetone)
1	0.31	90.3
2	0.36	79.5
3	0.73	91.2
4	0.79	80.6
5	0.87	91.2
6	0.99	85.5
7	1.58	88.6
8	1.62	88.8
9	1.97	90.4
Average		87.3

There is no easy, satisfactory specific colorimetric reaction for beta-hydroxybutyric acid. Hence, like Fuller, we deemed it necessary to adapt a simple procedure for determining the concentration of diacetic acid and, indirectly, of beta-hydroxybutyric acid. That there is a fairly constant ratio between the concentration of diacetic acid and beta-hydroxybutyric acid in ketonurine, over a fairly wide degree of ketosis, is shown in the tables.

In table 1 it may be noted that, for concentrations of beta-hydroxybutyric acid ranging from 0.31 to 1.97 per cent, the percentage of total acetone bodies present as beta-hydroxybutyric acid remains at the fairly constant value of from 80 to 90 per cent. Likewise, another series of cases (table 2) demonstrates that a concentration of acetone and diacetic acid of approximately 0.1 per cent accompanies a concentration of beta-hydroxybutyric acid of 0.5 per cent. Also, determinations of acetone bodies, other than beta-hydroxybutyric acid, which are present in ketonurine that contains 0.5 per cent beta-hydroxybutyric acid, demonstrate that acetone and diacetic acid are present in a concentration of 0.1 per cent, of which 75 per cent is present as diacetic acid.

In the Rothera test, diacetic acid develops approximately five times the depth of color developed by acetone; hence, the amount of color developed by ketonurine that contains 0.5 per cent beta-hydroxybutyric acid will approximate the color produced by a 0.5 per cent solution of acetone. The problem arises, then, to adapt the nitroprusside reaction so that it may be performed simply and quickly. Fuller has used, as

a standard, a combination of dyes that give a color approximating that produced by acetone and sodium nitroprusside. The procedure to be described here utilizes the fact that a phosphate buffer of p_H 8.0, when treated with a mixture of phenol red and bromthymol blue in the proper concentration, produces a stable color identical with that produced by ketonurine, which contains 0.5 per cent beta-hydroxybutyric acid when treated with sodium nitroprusside.

METHOD

To 800 mg. of ammonium sulphate in the ordinary Nessler comparison tube [1] graduated at 50 cc. is added 3 drops of concentrated ammonium hydroxide (0.15 cc.), 2 drops (0.10 cc.) of a 5 per cent solution of sodium nitroprusside, and 1 cc. of the urine to be examined. This is allowed to stand six minutes at a room temperature of approximately 25 C. (77 F.). The reaction product is then quickly diluted with water to the 50 cc. mark and mixed. This solution is immediately compared with the standard. If the color of the unknown is deeper than that of the standard, the concentration of beta-hydroxybutyric acid is greater than 0.5 per cent. If the color is lighter, the reverse is true. The standard is prepared by adding 4.0 cc. of a solution, containing 2 parts of 0.04 per cent solution of phenol red and 1.4 part of a 0.04 per cent solution of bromthymol blue, to 46 cc. of phosphate buffer at p_H 8.0. The standard retains its color for a considerable time, but a fresh standard may be prepared very easily if only an occasional determination is to be made. If one desires to estimate the percentage of the beta-hydroxybutyric acid, rather than simply to determine whether or not the percentage of beta-hydroxybutyric acid is greater or less than 0.5, a series of standards can be made by adding more or less solution of dye. These standards may correspond, for example, to solutions of beta-hydroxybutyric acid of 0.4 per cent, 0.5 per cent, 0.6 per cent and so on, or the unknown may be matched in a colorimeter against the standard and the concentration of beta-hydroxybutyric acid determined by simple calculation. The color produced by acetone and diacetic acid, with sodium nitroprusside, is transient; hence, it is necessary that the color comparison with the standard be made immediately following the six minutes given for the development of color and subsequent dilution. This fact militates against the employment of a comparison in a colorimeter. If many specimens of urine are to be examined, it is necessary that a time sequence be followed, so that the diluted nitroprusside solution is not allowed to stand. Six minutes has been determined as an optimal time for the development of color at room temperature. Only a certain maximal depth of color can be developed under the conditions of this test. This color corresponds to a concentration of beta-hydroxybutyric acid slightly greater than 0.5 per cent.

1. Tall form.

TABLE 2.—*Relationship of Concentration of Acetone and Diacetic Acid to Concentration of Beta-Hydroxybutyric Acid in Ketonurine (Series 2)*

Case	Beta-Hydroxybutyric Acid, per Cent (van Slyke Method)	Acetone and Diacetic Acid Calculated as Acetone (per Cent)
1	0.14	0.03
2	0.19	0.07
3	0.26	0.05
4	0.31	0.07
5	0.34	0.05
6	0.35	0.07
7	0.49	0.09
8	0.50	0.09
9	1.33	0.14
10	1.64	0.17

Hence, when a ketonurine is obtained in which a color develops that approximately corresponds to the standard or that is slightly deeper, it is best to repeat the test on a specimen of the urine which has been diluted with an equal amount of water. If the color developed by 1 cc. of urine that has been diluted 1:1 with water is again approximately as deep as the standard, it is certain that the concentration of beta-hydroxybutyric acid is about 1 per cent. Similarly, a dilution of urine 1:2 and 1:3 would indicate concentrations of 1.5 and 2 per cent if the color developed still approximated that of the standard. The highest percentage of beta-hydroxybutyric acid obtained so far was 2.57 per cent. More recent experiments have shown that many of various organisms found in urinary infection are resistant to the bactericidal action of ketonurine. Further work is being carried out to determine the concentration of beta-hydroxybutyric acid necessary for therapeutic action in such infections.

SOLUTIONS

The solutions required are: (1) sodium nitroprusside, 5 per cent (this solution is not particularly stable in air, although in a well stoppered bottle it will keep for several days); (2) concentrated ammonium hydroxide, with a specific gravity of 0.88; (3) indicator, which is made by adding 2.8 cc. of 0.04 per cent solution of bromthymol blue to 4 cc. of a 0.04 per cent solution of phenol red (the solutions of dye are prepared according to the procedure given by Clark for indicator solutions), and (4) phosphate buffer solution of p_H 8.0, which is prepared according to the procedure given by Clark: 5 cc. of fifteenth-molecular secondary sodium phosphate ($Na_2HPO_4:2H_2O$) and 95 cc. of fifteenth-molecular primary potassium phosphate (KH_2PO_4).

SUMMARY

The fact has previously been established that ketonurine with a p_H value of 5.5, or less, and a concentration of beta-hydroxybutyric acid of 0.5 per cent, or greater, will have a bactericidal action to the commonly encountered strains of Escherichia coli found in infections of the urinary tract. By the utilization of chlorphenol red test paper it can easily be determined that the p_H value of urine is greater or less than 5.5. The conditions have been described for determining, by a simple qualitative procedure, whether or not ketonurine possesses a concentration of beta-hydroxybutyric acid greater or less than 0.5 per cent. This procedure utilizes the nitroprusside test for acetone and diacetic acid and the fact that a fairly constant ratio exists between the concentration of total acetone bodies and beta-hydroxybutyric acid in ketonurine.

Graham Lusk's Student Days.—The first summer that I spent there (Munich) I lived on the Karlstrasse, having taken a room above a beer hall at five dollars a month. The good frau who rented the room gave me a roll without butter and a cup of coffee in the morning for five cents. . . . I well remember the ceremony of moving from one lodging to another. A dienstman brought a small hand cart. On this were placed my worldly goods, including my books and my beer mugs. While escorting this picturesque vehicle I met Mr. and Mrs. Henry Holt, old family friends, who had a hearty laugh over the scene.—Quoted by Light, A. E.: *Yale J. Biol. & Med.* 6:487 (May) 1934.

PREGNANCY AFTER PARALYSIS

REPORT OF THREE CASES

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Paralysis occurring late in pregnancy is not infrequent, but a fairly comprehensive review of the current literature revealed the reports of only three cases. I have found no report of pregnancy occurring in a patient with paralysis of long standing.

Pregnancy occurring after paraplegia is rare. Because of the infrequency of pregnancy in this type of patient, three cases are herewith reported.

A case of spinal cord tumor simulating acute myelitis associated with optic neuritis and painless labor was reported by Dr. E. W. Taylor[1] of Boston in 1906. This patient's symptoms occurred during pregnancy. She was delivered at term from below instrumentally because of weak uterine contractions. The delivery was painless and the convalescence normal, but death occurred a few months later.

The case of a woman seven months pregnant, paralyzed by a bullet wound of the spinal cord at the level of the fourth dorsal vertebra, was reported by Good[2] in 1924. He also reviewed the literature on the subject. In the case reported the patient was wounded during the seventh month of pregnancy but did not go into labor until the ninth month. She had no pains, scarcely any warning, and a precipitate delivery of a 4 pound 3 ounce (1,900 Gm.) baby. Eight days later phlebitis of the left leg developed and sixteen days post partum a rash appeared on the body which was diagnosed scarlet fever. She died about five weeks after delivery.

Another case presenting pachymeningitis and painless delivery from below was reported by Lewis.[3] Later, a laminectomy was performed on this woman. She recovered, with no paralysis, and has since had children and normal labor pains.

Warren[4] determined experimentally in guinea-pigs that a uterine incision heals normally after the cord has been severed in the region of the second and third thoracic vertebrae.

REPORT OF CASES

In the following three cases delivery was done by me:

CASE 1.—Mrs. M. V. S., a white woman, aged 30, a primigravida, was admitted to the Memorial Hospital, Jan. 17, 1933. She was referred by Dr. Phipps of Hopewell, Va., because of pregnancy of thirty-seven weeks' duration occurring three years after complete motor and sensory paralysis below the nipple line.

She had the usual diseases of childhood. The past history was otherwise essentially negative until the occurrence of paralysis in 1930, three years before pregnancy.

The menses commenced at the age of 15 years and occurred every twenty-eight days, of from four to six days' duration, with severe pain, until paralysis in 1930, after which the periods were regular but painless. Her last menstrual period began May 4, 1932.

Early in February 1930 she had "influenza" and remained in bed about two weeks. One week later she noticed a weakness in the lower extremities, which gradually ascended, and seven days later the paralysis involved her arms and she was blind in both eyes. She gradually improved, and three months later her vision was good and she had regained the use of her arms and hands. Her condition has otherwise remained unchanged, with complete motor and sensory paralysis below the second dorsal segment of the cord. There was incontinence of urine and feces, and the patient stated that sexual intercourse caused no sensation.

The patient stated that she had no discomfort during pregnancy and did not realize her condition until several months after her last menstrual period.

On physical examination the abdomen was enlarged to the size of an eight months' pregnancy. The abdominal muscles were flabby. There was no abnormal tenderness or rigidity. The fundus of the uterus measured 35 cm. The fetus presented as a frank breech in the left sacro-anterior position. Fetal heart sounds were present.

There was marked atrophy of the muscles of both lower extremities.

Pelvic measurements were within normal limits. The cervix was closed and the buttocks of the baby presented above the pelvic inlet.

The patient was examined by Dr. Lyerly of the neurosurgical department, who reported complete flaccid paralysis of both lower extremities, with complete loss of sensation below the first or second dorsal segment of the cord and loss of reflexes in both lower extremities. A lumbar puncture showed spinal fluid pressure of 100 mm. of water.

The Queckenstedt test was done with the patient quiet and relaxed. The spinal fluid pressure rose to 200 mm. of water in ten seconds and fell immediately to 110 mm. of water after release of the jugular compression.

Roentgen examination showed no evidence of pathologic changes except a congenital fusion of the second and third cervical vertebrae.

The laboratory examination showed: erythrocytes, 4,800,000; hemoglobin, 80 per cent; leukocytes, 8,800. The Wassermann reaction was negative. A catheterized specimen of urine contained 1 plus albumin, many bacteria and an occasional pus cell but otherwise it was normal.

Because of the marked atrophy of the abdominal muscles and the size and position of the fetus, it was decided to deliver the patient by cesarean section and to sterilize her by excision of the cornual ends of both fallopian tubes.

The patient was delivered by elective low cesarean section, January 28. No anesthesia was necessary and the patient had no discomfort at any time during the operation. The baby, a girl, weighed 7 pounds and 5 ounces (3,317 Gm.); it was normal and in good condition.

There was no abdominal distention or discomfort after the operation. The temperature remained normal until seven days post partum, when it gradually become elevated and at one reading on the tenth day was 101.8 F.; after the twelfth day it was below 100; after the sixteenth it remained normal.

At the onset of the septic temperature, slight edema of the left foot and leg was noticed. The edema disappeared after ten days, and no other evidence of phlebitis was observed.

The lochia was normal for a post cesarean section case.

The patient's breasts never became engorged or showed evidence of lactation. The baby was artificially fed.

The abdominal incision healed by primary union and both mother and child were discharged from the hospital, February 23, in good condition.

CASE 2.—Mrs. M. C., a white woman, aged 27, was attended at home. She was seen by me Feb. 17, 1933, when about seven months pregnant. Her last menstrual period commenced July 6, 1932, and lasted five days.

She had had the usual diseases of childhood, but the past history was otherwise negative until 1929, when she was injured in an automobile accident, suffering a fracture dislocation of the first lumbar vertebra. A laminectomy of the eleventh and twelfth thoracic and first and second dorsal vertebrae was done to relieve the pressure on the cord. There was a septic temperature during the first two weeks after operation, probably caused by "cystitis." The operative incision healed by primary union, but the paralysis remained approximately the same.

From the Department of Obstetrics, Medical College of Virginia.
Read before Medical College of Virginia Staff Meeting, Dec. 14, 1933.

1. Taylor, E. W.: Spinal Cord Tumor Simulating Acute Myelitis, Associated with Optic Neuritis and Painless Labor, J. Nerv. & Ment. Dis. **33**: 583, 1906.
2. Good, F. L.: Pregnancy and Labor Complicated by Diseases and Injuries of the Spinal Cord, J. A. M. A. **82**: 416 (Aug. 9) 1924.
3. Lewis, Dean, in discussion on Good,[2] J. A. M. A. **82**: 418 (Aug. 9) 1924.
4. Warren, Shields, quoted by Good.[2]

The menses commenced at the age of 13 years and occurred regularly every twenty-eight days, lasting five days, with no pain. She became pregnant in July 1932, about three years after being paralyzed. The pregnancy had been uneventful except for slight nausea and occasional vomiting during the first three months.

The patient stated that she had no sensation from intercourse. She was incontinent for both urine and feces, but at times she could retain small amounts of urine in the bladder temporarily. Usually she used an indwelling catheter connected to a tube and bottle. A catheterized specimen of urine contained numerous pus cells and a trace of albumin. It was otherwise normal.

The head and neck were normal. The teeth were in fair condition. The heart and lungs were normal. The pulse was 80 and the blood pressure was 100 systolic, 60 diastolic.

The abdominal muscles were flaccid. The patient was not sensitive to pin pricks below a level approximately 2 inches above the upper border of the symphysis. The abdominal muscles were relaxed, and there was considerable atrophy of the muscles of the lower extremities.

The abdomen contained a tumor the size of a seven months pregnant uterus. Fetal heart sounds were loudest in the lower left quadrant of the abdomen. The vertex presented in the left occipital transverse position with the head entering the pelvis. The pelvic measurements were within normal limits.

Vaginal examination showed the perineum relaxed with loss of tone of the pelvic muscles. The cervix was closed, partially effaced, and at the normal level.

The pregnancy progressed uneventfully until 9 p. m., April 7, when the membranes ruptured spontaneously and a considerable amount of fluid was lost. Weak uterine contractions commenced one hour later and occurred at fifteen minute intervals throughout the night. During the last twelve hours of labor the uterine contractions remained weak but occurred regularly every ten minutes. The patient had no pain and stated that uterine contractions caused a feeling similar to that experienced when there was gas in the intestine.

At 11 p. m., April 8, the patient had been in labor twenty-five hours. The uterine contractions, which had occurred at ten minute intervals, became infrequent during the last hour. The cervix had been fully dilated two hours, and the head engaged, with the vertex 1 cm. below the ischial spines. Delivery was completed with forceps (midforceps). No anesthesia was necessary, and the patient experienced no pain but was uncomfortable from the pressure exerted on the abdominal wall when the placenta was delivered by the Credé method, fifteen minutes after the baby. There was no laceration of the perineum but a slight abrasion of the posterior portion of the remaining hymenal ring. The uterus contracted normally after the third stage of labor.

The baby weighed 6 pounds and 4 ounces (2,835 Gm.) It was alive and apparently normal except for shortening of the bitemporal diameter, 7 cm.; the biparietal diameter measured 10 cm. The shape of the head may have been due to pressure, as the fetal head entered the pelvic inlet about the seventh month as a vertex left occipital transverse presentation.

The mother made an attempt to nurse the baby, but it was unsuccessful because the breasts never filled. Convalescence was normal.

Case 3.—Mrs. I. K. M., a white woman, aged 29, a sextigravida, quintipara, was admitted to Memorial Hospital, June 23, 1933. Her last menstrual period commenced Nov. 13, 1932, of two days' duration.

She was referred by Dr. Carter of Boydton, Va., because of pregnancy of thirty-seven weeks in a woman with paralysis of four years' duration.

During childhood she had chickenpox, measles, pertussis and erysipelas; her early history was otherwise negative.

The menstrual periods commenced at the age of 14 years, occurred every twenty-eight days and usually lasted three days. After the patient's injury in 1929 the menses were irregular for one year, but during the three years preceding the present pregnancy the periods were regular.

She was married in 1918 and had five pregnancies during the next ten years; all terminated spontaneously after normal labors. The babies all lived.

The present paralysis resulted when the patient fell from a tree in June 1929. A roentgen examination at that time showed a compressed fracture of the first lumbar vertebra and a fracture of the transverse process.

An operation was performed, June 5, 1929, by Dr. Lyerly, and the laminae of the twelfth thoracic and first lumbar vertebrae were removed to relieve the pressure. There was some posterior dislocation of the body of the first lumbar vertebra and there was a spicule of bone in the spinal canal almost completely severing the cord. The rest of the cord was badly bruised and injured.

The operation was performed under local anesthesia with no pain. The incision healed by primary union. June 20, fifteen days after operation, an acute pyelitis developed which was controlled by conservative treatment.

Several weeks after she left the hospital a bed sore developed, but this later healed and, except for the paralysis below the first lumbar vertebra, her condition had been good. She states that she has had no sensation from intercourse since the onset of paralysis. She has also been incontinent for urine and feces during this time.

Physical examination revealed that she was well nourished but unable to move the hips and lower extremities.

Abdominal examination revealed sensation to pain above the symphysis and showed the uterus enlarged to the size of a thirty-six weeks pregnancy. The fundus measured 33 cm.; fetal heart sounds were heard in the left lower quadrant, at a rate of 160 per minute. The baby presented as a vertex left occipito-anterior position, with the head not engaged.

Vaginal examination showed a relaxed perineum with loss of muscle tone, the cervix 1 cm. dilated but not effaced.

Examination of the lower extremities showed definite atrophy of the muscles.

A catheterized specimen of urine was cloudy, with a specific gravity of 1.019; it contained a trace of albumin and from 5 to 7 pus cells per high power field. It was otherwise normal. Blood examination revealed: erythrocytes, 3,920,000; leukocytes, 10,200, and hemoglobin, 80 per cent. The Wassermann reaction was negative.

June 30, she was prepared for an operative delivery. A spinal puncture was made in the second lumbar interspace; spinal fluid was obtained, and procaine crystals, 150 mg., were dissolved and injected, but the patient had anesthesia only 2 inches above the symphysis, and the operation was completed under nitrous oxide and oxygen anesthesia. Evidently there was a partial obstruction of the spinal canal at the level of the injury. A low cesarean section was performed and the patient was delivered of a normal male baby that weighed 6 pounds and 2 ounces (2,778 Gm.). Following delivery of the placenta the uterine tone was poor, and there was free hemorrhage from the uterus. The uterine cavity was packed with gauze, which was removed from the vagina twenty-four hours later.

The temperature was 101.8 at one reading the day after operation. Thereafter it remained below 100.2, and was 98.6 most of the time. The lochia was considered normal for a postoperative patient.

The mother made an attempt to nurse the baby during the first twelve days after delivery, and the baby was put to the breast regularly, but usually it got no milk. After one period at the breast there was a gain of 1 ounce (30 Gm.), but usually there was no increase in weight and the baby was bottle fed after the twelfth day.

There was no abdominal distention but the patient was incontinent for urine and feces as she had been before operation. The abdominal incision healed by primary union and both mother and baby were discharged, July 16, sixteen days after operation.

SUMMARY AND CONCLUSIONS [5]

The following points are of interest in these cases:

1. Pregnancy can occur in paralytic women.
2. Labor is painless.

5. The author is indebted for valuable information to Curtis, A. H.: Gynecology and Obstetrics, Philadelphia, W. B. Saunders Company **3**: 1118, 1933.

3. There is absence of any instinctive use of the accessory muscles during labor.

4. Uterine contractions were weak in the patient delivered from below.

5. Cesarean section and sterilization should be resorted to frequently in these patients.

6. Cesarean section may be performed in some cases without an anesthetic.

7. The uterine and abdominal incisions heal normally.

8. My patients were unable to nurse their babies.

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DISLOCATION OF THE SHOULDER

ACCOMPANIED BY FRACTURE OF THE GREATER TUBEROSITY AND COMPLICATED BY SPINATUS TENDON INJURY

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In our experience, fracture of the greater tuberosity of the humerus associated with dislocation of the head from the glenoid cavity is relatively rare. An inquiry among our colleagues appears to bear out this fact. An investigation of the literature, however, brings forth many diversified opinions. Eliason,[1] quoting Graessner, states that this type was found in twenty-four out of forty-eight cases of dislocation, and the percentage probably would be even higher if x-ray films were taken always before an attempt is made to reduce a dislocated shoulder. Roberts [2] collected eight cases that were seen in the Massachusetts General Hospital between 1923 and 1931. However, he does not tell how frequently fracture is associated with dislocation. Cubbins and Scuderi [3] found ten instances in 500 fractures of the humerus. Gratz [4] and Fruhmann [5] each report one case. Rixford [6] states that fracture of the greater tuberosity as a complication of dislocations of the shoulder is due commonly to impingement on the edge of the glenoid, and its points of attachment of the dorsal scapular muscles often are pulled away. Moreover, he points out the fact that stereoscopic x-ray films are invaluable in diagnosis of such fractures. In discussing fractures of the greater tuberosity, Park [7] states that it may occur in conjunction with dislocation of the shoulder. Murray [8] reports also that fracture of the greater tuberosity sometimes occurs as a complication following dislocation of the shoulder. Nicod [9] reports a case that was not diagnosed correctly until three months after the accident. At this time it was found necessary to do an open operation to bring about relief. McWhorter [10] reports two cases of his own and quotes figures from the following authors: (1) Schlaepfer [11] found fracture of the greater tuberosity in eight of 120 dislocations of the shoulder; (2) Gubler [12] found this fracture to occur eighteen times in 252 dislocations. It will be noted that the last two quotations are in marked contrast with the proportions mentioned by Eliason.[1] Two more cases are reported by Csillag,[13] which were not diagnosed until several weeks following the injury. These cases both came to open operation. One case is reported by Hodgson,[14] but it was not diagnosed until after reduction of the dislocation. Meyerding,[15] in a series of twenty-four shoulder dislocations, found the greater tuberosity fractured in two of them. Such figures as shown here seem to point out, with the exception of one author, that dislocation of the shoulder complicated by fracture of the greater tuberosity of the humerus is a relatively rare condition. It does occur frequently enough, however, so that it should be considered every time a dislocated shoulder is seen.

Complicating this type of fracture dislocation of the shoulder is injury to one or both of the spinatus tendons. Probably most of the existing knowledge of this condition is the result of work done by Codman. He makes first mention of theoretical injury to the spinatus tendons in a paper [16] published in 1906. He has more recently stated [17] that he has seen this injury 122 times and has operated in thirty-eight of these cases. He states that it occurs especially with dislocation, but he does not mention its occurrence with dislocation fracture of the greater tuberosity. In a recent study of 340 anatomic dissections, Fowler [18] found complete rupture of the supraspinatus tendon in one out of every twenty-eight shoulders examined, and incomplete rupture in one out of every six shoulders.

ANATOMY AND PATHOLOGY

It will be remembered that the tendons of the supraspinatous and infraspinatus and teres minor muscles are inserted in the greater tuberosity, and these muscles as a group often are called the external rotators of the arm [19] (fig. 1). It is also necessary to remember [20] that the capsule of the shoulder joint in its superior and posterior portion blends with and becomes indistinguishable from the flat expanded tendons of the supraspinatus, infraspinatus and teres minor muscles as they pass to their points of insertion in the greater tuberosity of the humerus. These tendons blend with one another and can be differentiated only in an arbitrary manner.

1. Eliason, E. L.: Nelson Loose Leaf Living Surgery **3:** 206.
2. Roberts, S. M.: Fractures of the Upper End of the Humerus, J. A. M. A. **98:** 367-373 (Jan. 30) 1932.
3. Cubbins, W. R., and Scuderi, C. S.: Fractures of the Humerus, J. A. M. A. **100:** 1576-1579 (May 20) 1933.
4. Gratz, C. M.: Anterior Subglenoid Dislocation with Fracture of the Greater Tuberosity of the Humerus, S. Clin. North America **10:** 549-551 (June) 1930.
5. Fruhmann, P.: Dislocation of the Shoulder Complicated by Fracture of the Greater Tuberosity, Zentralbl. f. Chir. **58:** 1815 (July 18) 1931.
6. Rixford, E.: Dislocations of the Shoulder, Am. J. Surg. **8:** 268-272 (Feb.) 1930.
7. Park, B. S.: Complications of Dislocation of the Shoulder Joint, Internat. J. Med. & Surg. **44:** 457-463 (Oct.) 1931.
8. Murray, C. R.: Active Mobilization Following Reduction of Fracture Dislocation of the Shoulder, S. Clin. North America **8:** 1069-1074 (Oct.) 1928; Dislocation of the Shoulder, J. A. M. A. **98:** 337-340 (Jan. 31) 1931.
9. Nicod, P.: Luxation ancienne de l'épaule gauche avec parcellaire du massif tuberositaire, Arch. franco-belges de chir. **32:** 163-166 (Feb.) 1930.
10. McWhorter, G. L.: Fractures of the Greater Tuberosity of the Humerus with Displacement: Report of Two Cases Operated with the Author's Technic of Shoulder Incision, S. Clin. North America **5:** 1005-1017 (Aug.) 1925.
11. Schlaepfer: Uncomplicated Dislocations of Shoulder: Their Rational Treatment and Late Results, Am. J. M. Sc. **167:** 244 (Feb.) 1924.
12. Gubler: Zur Prognose der Schultergelenkluxation, Schweiz. med. Wchnschr. **52:** 960-985 (Sept. 28) 1922.
13. Csillag, J.: Die Therapie der veralteten Schultergelenksluxationsfrakturen, Zentralbl. f. Chir. **57:** 2976, 1930.
14. Hodgson, N.: An Unusual Type of Dislocation of the Shoulder, Brit. M. J. **2:** 622 (Oct. 5) 1929.
15. Meyerding, H. W.: Fracture of the Humerus, Minnesota Med. **14:** 963 (Nov.) 1931.
16. Codman, E. A.: Boston M. & S. J. **154:** 750 (May 31) 1906.
17. Codman, E. A.: Surg., Gynec. & Obst. **52:** 579-586 (Feb. 15) 1931.
18. Fowler, E. B.: Stiff, Painful Shoulders, Exclusive of Tuberculosis and Other Infections, J. A. M. A. **101:** 2106-2109 (Dec. 30) 1933.
19. Spalteholz, W.: Hand Atlas of Human Anatomy **2:** 322-323, Davis, G. G.: Applied Anatomy, ed. 5, Philadelphia, J. B. Lippincott Company, p. 245. Magnuson, P. B.: Fractures, Philadelphia, J. B. Lippincott Company, 1933, pp. 75-79.
20. Codman, E. A.: Complete Rupture of the Supraspinatus Tendon: Operative Treatment, with Report of Two Successful Cases, Boston M. & S. J. **173:** 708-710, 1911.

The supraspinatus tendon lies superiorly and forms the roof of the shoulder joint. It also forms a part of the floor of the subacromial bursa, which is interposed between it and the acromial process and extends nearly an inch between the greater tuberosity and the deltoid muscle.

The spinatus tendon commonly ruptures close to the greater tuberosity. Retraction of the muscle enlarges the gap and creates an opening through which there is direct communication between the bursa and shoulder joint. In a series of ten cases of complete rupture studied by Wilson,[21] this gap measured from 1 to 2½ inches in diameter, with the average measuring about 1½ inches. In addition to gross ruptures, oftentimes a small tear involving a few fibers of the tendon may occur. This lesion is probably the most common cause of traumatic subdeltoid bursitis. Calcification [22] of the tendon is thought to be due to partial ruptures, following which nature attempts to repair a tissue with little blood supply.

SYMPTOMS AND DIAGNOSIS

The earliest symptoms are similar to those of subluxation of the head of the humerus from the glenoid

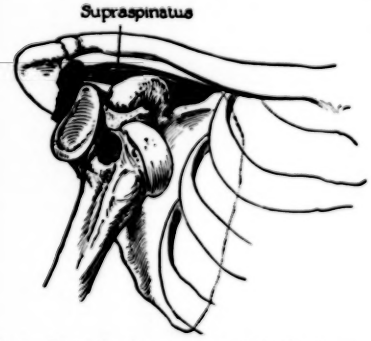

Fig. 1.—Relationship of structures around shoulder joint in which there is a dislocation of the head of the humerus complicated by fracture of the greater tuberosity. (From Magnuson's "Fractures.")

cavity. The arm hangs a little away from the side. The roundness of the shoulder has disappeared. The glenoid fossa can usually be palpated and the head of the humerus may be felt in the axilla. There is marked tenderness over the greater tuberosity, which is not found in simple dislocation. Furthermore, the patient will nearly always give a history of a direct blow against the shoulder at the time of injury.

Before one attempts any manipulation, x-ray films of the shoulder should be made; not only will these show the dislocation of the head of the humerus from the glenoid cavity, but the greater tuberosity will be found lying above and medial to its normal position.

Diagnosis of tendon injury may be quite difficult at this time; in fact, it is unwise to test for its continuity now because, if it is not ruptured, tension on it will tend to pull the greater tuberosity still farther out of place. Later, when bony union has occurred, the following picture may present itself: The patient will have difficulty in raising the arm from the side to complete abduction unless he does it with the arm in either complete internal or external rotation. There may be a tender spot over the greater tuberosity. By passively pulling the arm downward and then abducting it, the patient will complain of pain and crepitus when the greater tuberosity slides beneath the acromial process. Active external rotation may be impossible or diminished. X-ray films taken of old cases frequently reveal a hypertrophy or roughening of the greater tuberosity. If sufficient time has elapsed, atrophy of the suprascapular muscles may be seen. Fowler [23] describes his test for rupture of the supraspinatus tendon as follows:

> The patient rests his shoulder on a crutch or upon a comfortable high back chair so that the shoulder is elevated 2 to 3 inches, thus relaxing the trapezius muscle. The patient is asked to abduct the dependent arm a number of times, with the examiner's fingers resting on the relaxed trapezius directly over the supraspinatus muscle. If the tendon is ruptured, there will be an absence of palpable contraction of the supraspinatus muscle on the affected side. The infraspinatus can be felt and even seen in most cases, without special position of the shoulder. Snapping or crepitation is often heard and felt by the patient, and sometimes all those present at the examination, when the greater tuberosity passes beneath the acromion process.

TREATMENT

The treatment of dislocation of the shoulder with fracture of the greater tuberosity is usually quite simple. The dislocation is readily reduced by the Kocher method, preferable under general anesthesia. As the shoulder is replaced in the glenoid cavity, it slides against the fragment of the greater tuberosity and it too falls into perfect position. In view of the anatomy involved, the arm should then be put up in abduction and external rotation so that there may be no tension on the greater tuberosity. It should be kept in this position for from three to four weeks, after which it may be let down to the side and some type of physical therapy carried out until the function has well returned. It is doubtful whether open reduction for replacement of the tuberosity is ever necessary. To illustrate this point, Roberts [7] tells of one case in his series. The attending physician was dissatisfied with the postreduction x-ray films, so he decided to do an open operation with the idea in mind to fix the greater tuberosity with fascia or a bone peg. However, when the region was exposed the tuberosity was found to be in such good position that the wound was closed and he stopped looking at the x-ray films. Cubbins and Scuderi [8] found "much to their amusement" that in some of their cases the greater tuberosity remained in good position even though the arm was placed along the thorax in a Velpeau bandage. This may be adequate in selected cases, but we feel that there is no definite criteria on which to base selection except an x-ray film. Of course, this shows only the bony injury and does not give one any conception of how much or how extensive the associated capsule injury may be. Hence we feel that it is better to err on the side of safety and treat all these injuries as more than a simple fracture. This is, of course, best carried out by placing the arm in abduction and external rotation.

The treatment of the tendon injuries is much more complicated. If the rupture has been only partial, the relaxation of the muscles incident to the treatment of

21. Wilson, P. D.: Complete Rupture of the Spinatus Tendon, J. A. M. A. **96**: 433-439 (Feb. 7) 1931.

22. Dollinger, J.: Anatomic Localization and Treatment of Painful Shoulder Erroneously Designated as Chronic Subacromial Bursitis, Zentralbl. f. Chir. **59**: 579 (March 5) 1932.

23. Fowler, E. B.: Rupture of Spinatus Tendons and Capsule Repaired by a New Operation, Illinois M. J. **61**: 332-334 (April) 1932.

the bone injury by abduction and external rotation usually will be adequate to permit complete healing of the tear. If, however, a complete rupture of one or more tendons can be diagnosed, early open operation should be done. It is also wise in case of doubt to make a small exploratory incision to make sure that some injury is not overlooked. The operation itself consists

Fig. 2 (case 1).—Subglenoid dislocation of head of humerus with displaced fracture of greater tuberosity.

in anchoring the tendon ends either to the greater tuberosity or to the subscapularis tendon anteriorly. The wound is closed and the arm put up in abduction and external rotation for six weeks, after which it is let down and a sling worn for a few days until the arm can be carried comfortably at the side without it. After abduction and external rotation have been discontinued, passive motion heat, and massage should be carried out until the muscle and joint function is well restored.

RESULTS

Cases in which operation is performed relatively early result in perfectly useful joints. However, the old cases may present so much muscle atrophy and tendon shortening that there may be some limitation of internal rotation and abduction of the humerus. The latter may also be accompanied by some pain.

REPORT OF CASES

To illustrate the foregoing discussion, the following cases taken from our experience may serve well as examples:

CASE 1.—E. T., a man, aged 22, was seen within half an hour after an accident. He had been playing tennis and, while running for a ball, he tripped and fell with his shoulder against the net post. Immediate pain, deformity and disability of the shoulder resulted. Roentgenograms taken soon afterward revealed a subglenoid dislocation of the head of the humerus with a displaced fracture of the greater tuberosity (fig. 2). The patient was anesthetized with nitrous oxide gas and the dislocation reduced by the Kocher method. A film after reduction (fig. 3) showed the head in the glenoid fossa and the greater tuberosity back in perfect place on the humerus. The arm was placed in an airplane splint in 90-degree abduction and complete external rotation for three weeks, following which it was let down and a sling worn for four days. Following the removal of the splint, external heat, massage and passive motion were carried out daily for one week, after which it was done three times weekly for the next two weeks. There was no limitation of motion, pain, tenderness or crepitation following, so a diagnosis of tendon injury was impossible. At the present time, two and one-half years later, he has a perfect result.

CASE 2.—Mrs. P. E., aged 58, was seen shortly after falling against her right shoulder on a recently waxed floor. There was immediate pain, deformity, and marked tenderness over the outer border of the head of the humerus. X-ray films showed a downward dislocation of the head of the humerus with fracture of the greater tuberosity. The patient was anesthetized with nitrous oxide gas, which was changed to drop ether in order to gain satisfactory muscle relaxation. The shoulder was then replaced by the Kocher maneuvers. Post reduction roentgenograms revealed perfect reduction of the head and replacement of the greater tuberosity. The patient was then placed in an airplane splint with the arm in 90-degree abduction and complete external rotation.

The patient did not tolerate the airplane splint at all well because of the fact that she was short in height and weighed over 200 pounds. After two days the splint was removed and the patient put to bed on her back. The arm was held in abduction and external rotation by light sand bags. This position was maintained for two weeks, after which the patient was allowed up wearing a sling. Gentle physical therapy followed and three weeks from the time of injury all support was discontinued. External heat and massage were continued for six weeks more. The patient then had perfect use of the shoulder, without pain. At the present writing, nearly three years after the accident, the injured shoulder appears in all respects to be as good as the other.

CASE 3.—Mrs. E. K., aged 36, was thrown from a horse. She struck against her left shoulder and had immediate pain, disability and deformity. X-ray films showed a downward and forward dislocation of the head of the humerus and a comminuted fracture of the greater tuberosity. Under nitrous oxide gas, the shoulder was reduced by the Kocher method without difficulty. Roentgenograms taken immediately afterward showed a perfect reduction of the head and also the fragments of the greater tuberosity. An airplane splint was applied with the arm in complete abduction and external rotation. This splint was worn for three weeks, after which a sling was worn for one week more.

Fig. 3 (case 1).—After reduction: head in glenoid fossa and greater tuberosity in place.

The patient had far more shoulder pain after the reduction than the other two patients, enough so that further injury should have been suspected. Beginning two weeks after the accident, diathermy treatments were given to the shoulder every other day. Other forms of physical therapy were continued for nearly three months because of pain and limitation of motion. By this time it was obvious that there was still some other derangement of the joint present. There was ten-

derness on pressure over the greater tuberosity. As the patient was very slender, there was no apparent atrophy of the suprascapular muscles. She could not have the arm abducted actively or passively more than 45 degrees from her side because of an apparent blocking of the greater tuberosity against the acromion. If, however, the arm was rotated either internally or externally, it could then be abducted to 90 degrees, but only with pain and crepitation when the edge of the greater tuberosity passed beneath the acromion process. The arm could also be completely abducted from the side if it was pulled downward during the maneuver, so as to overcome the upward pull of the deltoid muscle. Roentgenograms at this time showed some enlargement of the greater tuberosity; otherwise the bones of the shoulder were normal. In view of the continued pain and disability and the presence of the conditions noted, it was decided to explore the region of the greater tuberosity.

Under ethylene anesthesia the shoulder was opened. Both the supraspinatus and infraspinatus tendons were found to be pulled from their normal attachment and the ends were located attached three-fourths inch posteriorly. With the arm held in complete abduction and external rotation, the tendon ends were loosened and pulled down and sutured to the posterior border of the distal end of the subscapularis tendon with chromic catgut. The wound was then closed and the patient put in bed with her arm fastened down in 90-degree abduction and complete external rotation. This position was maintained in bed for two weeks, after which she was allowed up and an airplane splint was applied, still maintaining the same position. This brace was worn for four weeks. Physical therapy was begun three weeks after the operation and continued for two months.

At present, over two years after the original injury, the patient has perfect use of the shoulder. There is no pain except that sometimes in certain positions a slight click is felt when the greater tuberosity passes beneath the acromion. This click is occasionally accompanied by a slight wincing pain.

CASE 4.—A woman had a subglenoid dislocation of the head of the humerus, which was already properly reduced when she came under our care. She presented a marked swelling of the shoulder joint, much more than one would usually see accompanying a dislocation. The first x-ray film, taken with the arm in abduction and internal rotation, gave normal results. Another film was then taken with the arm in external rotation to show the trochanter in profile. We found the greater tuberosity to be roughened and to be irregular on the tip and finally managed to make out the thin shell of bone from the torn tendinous attachments lying above it, between the head of the humerus and the acromion. The arm was put up in 75-degree abduction with the elbow forward, level with the anterior chest wall, and the arm in external rotation. There was a complete recovery in three months.

CASE 5.—This was the result of a fall on the outstretched arm to the side, with a continuation of the force so that the hand traveled above the head and backward. In other words, this patient pitched toward the right side and the hand was carried upward and backward by the continuing force. There was a dislocation of the humerus, but it seems likely that in this case there was direct violence to the greater tuberosity by the end of the acromion before the head was dislocated. This point is, of course, theoretical. There was no difficulty in maintaining this fragment in position with 60 degrees of abduction. The patient made a good recovery.

CONCLUSIONS

1. Fracture of the greater tuberosity sometimes occurs when the head of the humerus is dislocated from the glenoid fossa. These fractures may be overlooked unless roentgenograms are taken with the arm in external rotation so as to show the trochanter in profile.

2. Since fracture of the greater tuberosity may accompany dislocations of the shoulder, it is imperative that x-ray films be made before an attempt is made to reduce any such injury. If a fracture exists, post-reduction roentgenograms should follow.

3. Tearing of one or both spinatus tendons may accompany dislocation of the shoulder when the greater tuberosity is simultaneously fractured. One should attempt to diagnose this complication as soon as possible so as to institute an early repair if a good end result is to be expected.

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GASTRO-ENTEROSTOMY WITH EXCLUSION OF INOPERABLE CANCER OF PYLORUS AND ANTRUM

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Gastro-enterostomy with exclusion of cancer of the pylorus and antrum may be the first step in a two-stage resection or may be indicated as a palliative measure for inoperable cancers of this location. The advantages, indications and technic of this operation are presented here, with a review of the evolution of this procedure.

The treatment of choice for operable gastric carcinoma is resection of the stomach. This procedure is not tolerated well by patients in poor general condition with tumors of questionable operability because of fixation, surrounding inflammatory reaction and enlarged perigastric nodes. We have previously explained the advantages and indications for using two stages in resections under these conditions.[1] The first stage, consisting of exclusion of the carcinomatous segment of the stomach with gastro-enterostomy, may be done under a local anesthetic and requires little more time than gastro-enterostomy alone. The patient receives a liberal postoperative diet so that he is better able to tolerate the second stage of the operation or removal of the tumor, which is quickly and safely done with a functioning gastro-enterostomy. The second operation is less often complicated by infection, as the peritoneum seems to acquire an immunity through the contamination of the first operation. The danger of infection extending by way of the lymphatics through the diaphragm has been mentioned as more imminent in carcinoma than in ulcer of the stomach. We have found that the inflammatory resection about the tumor will subside after it has been freed from contact with the gastric contents, so that this segment of the stomach may be more easily dissected from the surrounding organs. The perigastric nodes may also diminish markedly in size, proving their inflammatory nature. During the entire management there is no interruption in feeding the patient. Balfour [2] advised the selective use of this two-stage operation in 1928. The first stage may be gastro-enterostomy alone or gastro-enterostomy with exclusion of the cancer-bearing pyloric segment of the stomach.

The latter procedure has had frequent application in our hands as a palliative measure for inoperable cancers of the pylorus and antrum, in which the second stage or removal of the tumor is not planned. Gastro-enterostomy alone has been the procedure in these cases previously. Gastro-enterostomy for cancer is attended

From the Gastric Service of Memorial Hospital.
Read before the Society for the Advancement of Gastro-Enterology, New York, Feb. 28, 1934.

1. Pack, G. T.: Indications for Two Stage Resection of Carcinoma of Stomach, S. Clin. North America **13**: 517-523 (April) 1933.

2. Balfour, D. C.: A Method of Carrying Out a Two Stage Operation for Carcinoma of the Stomach, J. A. M. A. **90**: 1936 (June 16) 1928.

by a mortality rate that is almost as high as for gastric resection and in addition has many other disadvantages, which we shall summarize briefly. W. H. Mayo has aptly said that gastro-enterostomy for cancer enables the patient to live longer and suffer more. The symptomatic relief from this operation is not great, as the patients continue to experience some pain, anorexia, nausea and frequent eructation of gas and foul liquid. The food is contaminated by contact with the ulcerated infected lesion. The tumor is irritated by the food and products of digestion resulting in continued bleeding and progressive anemia. The infected cancer may delay the healing of the wound of anastomosis and lead to perforation. The carcinoma after gastro-enterostomy frequently grows upward to involve and obstruct the stoma, unless a very high anastomosis is done, in which case it is not of great aid in emptying the stomach. Even with a gastro-enterostomy, the peristaltic waves attempt to force the food through the pylorus and past the obstructing cancer. Kelling [3] has shown that, after gastro-enterostomy, 235 of 250 cc. of fluid introduced into the stomach passed through the unobstructed pylorus, while only 11 cc. passed through the gastro-enterostomy stoma. This work was verified by

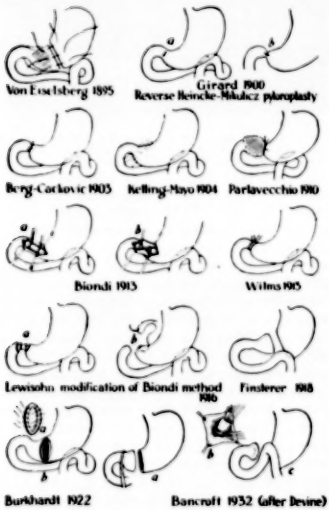

Fig. 1.—Evolution of methods of excluding pylorus for ulcer and carcinoma. The technical details are described in the text.

Lewisohn,[4] who derived his opinion through the use of a dye, thionine blue, which has an affinity for mucus. Pyloric obstruction will deflect more of the gastric contents through the gastro-enterostomy stoma; nevertheless, the carcinoma in this segment of the stomach continues to be traumatized so long as it remains in the gastro-intestinal channel.

3. Kelling: Studien zur Chirurgie des Magens, Arch. f. klin. Chir. **62**: 1-42, 1900.

4. Lewisohn, Richard: The Value of Pyloric Exclusion in the Treatment of Pyloric and Duodenal Ulcers, Ann. Surg. **67**: 560-564 (May) 1918.

The advantages of gastro-enterostomy are greatly enhanced by permanent exclusion of the carcinoma of the pylorus, antrum and occasionally pars media, from the uninvolved proximal segment. The first case in which we employed this procedure was an inoperable carcinoma of the first part of the duodenum. This operation is done in one stage for inoperable cancers only. Its chief indication is when the carcinoma is so fixed and adherent that partial gastrectomy is not feasible. We employ partial gastrectomy for palliation even in the presence of metastases to the liver or

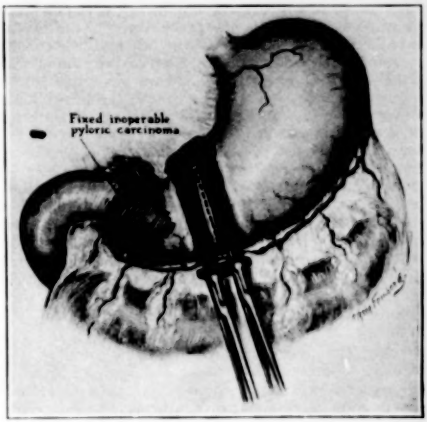

Fig. 2.—First step in the exclusion of an inoperable carcinoma of the pylorus.

supraclavicular nodes if the patient is in good condition and the stomach is sufficiently mobile.

The operation we are describing in this communication is not to be generally used, but it is helpful in indicated cases. Its purpose is to prolong life and to make the patient more comfortable. It may also precede palliative irradiation when there is retention of the barium ingesta at the end of six hours; external and interstitial irradiation may be more safely employed, as there is less danger of infection and perforation of the cancer as well as injury to contiguous mucous membrane. This operation has a lower mortality rate than gastro-enterostomy alone, as has been proved statistically by several authors, who used various methods of exclusion for gastric and duodenal ulcer. The excluded distal segment of the stomach is put at complete rest, which greatly relieves pain and discomfort. The appetite and digestion improve as soon as the proximal gastric mucosa becomes clean and free from infection. The tumor itself becomes smaller, presumably because of the subsidence of infection and surrounding inflammatory reaction. This is beneficial in three different ways: Irradiation is not handicapped by the diminished radiosensitivity of the cancer which infection entails; the rate of growth of the tumor is no longer increased by the stimulation through infection; the exclusion of digestive ferments renders the danger of autodigestion and perforation of the cancer less imminent. Hemorrhage is then an infrequent com-

plication and the anemia less fulminating. Exclusion of the tumor prevents its extension to involve the new stoma and occasionally the cardia.

Exclusion of the pylorus or distal third of the stomach for gastric and duodenal ulcers has been advocated by innumerable surgeons during the past forty years. We have not attempted to cull a complete bibliography from the literature on this subject but have shown diagrammatically the salient features of these operations in figure 1. The majority of these authors have applied this operation only in the treatment of peptic ulcers, Parlavecchio [5] in 1910 being the only one we discovered who used it for carcinoma. We claim no originality for this procedure. It is presented here because its advantages are not well recognized.

The first operation for exclusion of the pylorus was described by Doyen in 1892 and was accomplished by means of a transverse section of the stomach with blind closure of the ends. Three years later, von Eiselsberg [6] described a similar procedure which he advised for the surgical treatment of peptic ulcers in preference to simple gastro-enterostomy. His technic will later be described in full. This operation in the hands of its originator required about ninety minutes. Its value in the treatment of selected cases with ulcers of the duodenum and pylorus as well as some situated high on the lesser curvature was recognized and stimulated surgeons to seek simpler methods for obtaining the same benefits. We shall describe a few of these procedures to illustrate the evolution of the operation.

Girard [7] in 1900 devised a plastic operation for constricting the pylorus, which was a reversal of the Heincke-Mikulicz pyloroplasty. The Heincke-Mikulicz pyloroplasty, which is used to relieve pyloric obstruction due to cicatricial narrowing, is performed by making a longitudinal incision through the anterior gastric wall directly over the pylorus, extending 1 inch onto

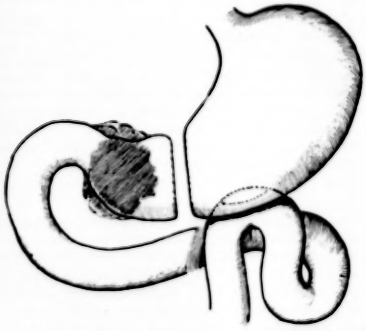

Fig. 3.—Diagram of completed operation for exclusion of inoperable cancer of the pylorus with isoperistaltic gastro-enterostomy.

the antrum and duodenum. The oral and aboral ends are then approximated and a transverse closure is made in two layers. Girard made a transverse incision in the anterior wall of the antrum proximal to the ulcer or pylorus (if duodenal ulcer) and approximated the ends and sides of the incised wall in a longitudinal direction. This method never became popular.

Kelling and Mayo [8] in 1904 attempted to close the lumen of the pyloric segment by means of four ligatures of silver wire, each of which was stitched twice

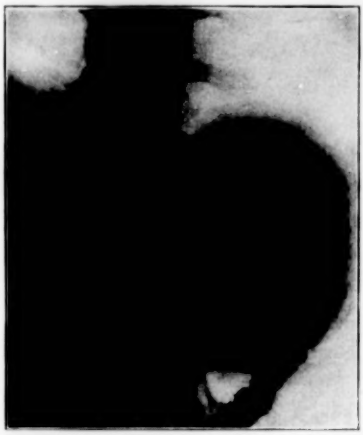

Fig. 4.—Functioning gastro-enterostomy. The silver clips (von Petz), marking the location of the severed distal segment of the stomach, are at the margin of the vertebral shadow.

through the wall and then tied so as to produce an infolding of the wall. This method did not give permanent results, as proved by the postmortem examination of a patient so treated.

Kelling in 1899, Berg [9] in 1903 and Cackovic [10] in 1903 described simple methods of ligating the pylorus with Pagenstecher sutures. Wilms used a free autoplastic transplant, usually of fascia lata, for a constricting band. Parlavecchio in 1910, evidently without knowledge of the previous methods, attempted to ligate either near the pylorus or higher by means of a constricting band of cotton tape. He advised this procedure for pyloric or prepyloric cancer, giving excellent reasons for its use. He first tried animal experiments and did not report its use in human beings until 1913. Wynen [11] in 1927 reported the use of a mattress suture to exclude the pylorus experimentally but concluded that it did not produce a permanent obstruction. This is true of all ligation methods.

Biondi in 1913 devised a method intermediate in degree between the simple ligation technic and the more extensive operative procedure of von Eiselsberg. He made a longitudinal incision including only the seromuscular layers of the anterior wall of the antrum and extending to the pylorus. The mucosa was then

5. Parlavecchio, G.: Nuovo methodo per l'esclusion del piloro, Policlinico (sez. prat.) **17**: 515-517, 1910.

6. von Eiselsberg, Anton: Ueber Ausschaltung inoperabler Pylorusstricturen, nebst Bemerkungen ueber die Jejunostomie, Arch. f. klin. Chir. **50**: 919, 1895; Verhandl. d. deutsch. Gesellsch. f. Chir. **24**: 11, 657-677, 1895.

7. Girard: Zur Technik der Pylorusexclusion, Arch. f. klin. Chir. **95**: 573, 1911.

8. Mayo, W. J.: Duodenal Ulcer, Ann. Surg. **40**: 900, 1904.

9. Berg, A. A.: Einseitige Ausschaltung des Duodenum bei perforierender Geschwürbildung an der hinteren Wand des absteigenden Duodenalastes, Zentralbl. f. Chir. **30**: 556, 1903.

10. Cackovic, M.: Einseitige Ausschaltung des Duodenum bei perforierender Geschwürbildung an der hinteren Wand des absteigenden Duodenalastes, Zentralbl. f. Chir. **30**: 649, 1903.

11. Wynen, W.: Experimenteller Beitrag zur Frage der Absteppung von ulcuskranken Magenteilen durch die Naht nach Sattler, Deutsche Ztschr. f. Chir. **201**: 252-255, 1927.

dissected free, ligated twice and severed between the ligatures. The incised layers were sutured, leaving an exclusion which was permanent.

In 1914 Bartlett [12] described a similar method, which did not require a complete transverse section of the stomach. This procedure, also known as "Hammersfahr's subserous method," was modified by Burkhardt [13] in 1922. Its object was to build a septum above the pylorus. The transverse incision was made through the entire thickness of the anterior gastric wall but only through the posterior mucosa. In other words, the mucosal layer was completely severed with only the posterior seromuscular layer of the stomach intact. The proximal anterior and posterior mucosal layers were inverted and sutured, as were the distal layers. The anterior seromuscular layers were then sutured to the intact posterior layer.

Lewisohn [14] classified and summarized these methods, concluding that simpler measures were as satisfactory for peptic ulcer as the more complicated procedures.

Finsterer [15] used a technic which does not seem to differ from that of von Eiselsberg except in the variation of the level for section of the stomach and the completion of the operation in one case by a terminolateral anastomosis between the proximal segment and the duodenum. Devine [16] used a similar procedure, always establishing continuity of the lumen by means of a terminolateral anastomosis. He also made a deep incision into the gastrohepatic omentum, into which he sutured the closed pyloric end in order to aid drainage. In a later article he [17] reported a case in which a jejunal ulcer, developing after a gastro-enterostomy, was isolated by division of the stomach above the stoma and anastomosis of the jejunum to the proximal segment side to end, thus eliminating the jejunal ulcer in the segment between the two sutured portions. A lateral entero-anastomosis was done to drain the distal closed loop of duodenum and pylorus.

Bancroft [18] sectioned the stomach without a clamp on the distal portion, dissected the mucosa free in the segment of the stomach, then ligated it at the pylorus and removed the excess to prevent stasis in the blind pouch. Cunningham [19] showed by animal experiments that this procedure was unnecessary. He performed partial and subtotal pyloric exclusion operations on dogs and found that the excluded portion contracted to form a tube with the cut surface lying horizontally and the mucosa degenerated. The parietal cells degenerated to a greater extent than the chief cells and were replaced by fibrous tissue.

The technical procedure that we have employed most often for inoperable carcinoma of the antrum and pylorus is the method devised by von Eiselsberg.[20] This embodies a complete transverse severance of the stomach above the limits of the tumor and entero-anastomosis of the jejunum and the proximal uninvolved segment of the stomach. The gastrocolic and gastrohepatic ligaments are perforated close to the stomach proximal to the tumor. The gastric and gastro-epiploic vessels are doubly clamped, severed and ligated, thereby freeing the lesser and greater curvatures of the stomach for a distance of from 3 to 4 cm. Two Payr clamps are then placed above the palpable limit of the tumor and the stomach is sectioned transversely either by cautery or by scalpel with sterilization by iodine. Although this incision should be well above the discernible margin of the carcinoma, it should not be so liberal as to permit the accumulation of secretion in this blind distal pouch. The mucosal and seromuscular layers are then closed by any of the conventional methods, thereby causing a complete division of the proximal and distal segments. After this closure was effected, von Eiselsberg anchored the distal stump to the proximal one to keep it in good position. We have never found this precaution to be necessary, since we cover the defect with omentum and have never seen the complication of herniation of the small intestine through the opening into the lesser omental sac.

The type of anastomosis selected depends on the local conditions within the abdomen and should be selected to afford the best functional result. The isoperistaltic posterior gastrojejunostomy is most commonly employed, although we have several times found the anterior method more readily done, in which case a lateral anastomosis is effected between the ascending and the descending limb of the jejunal loop. In other cases the posterior Polya or anterior Balfour end-to-side methods may be substituted.

This operation can be performed quickly and most efficiently with the use of the von Petz clamp. The application of this clamp across the stomach leaves two rows of closed silver clips; they are hemostatic and also give a watertight closure. A quick incision between the two rows of clips and continuous seromuscular sutures for the severed ends lessens the time consumed in this operation.

SUMMARY

The advantages of gastro-enterostomy for inoperable stenosing carcinomas are greatly enhanced by permanent exclusion of the involved pylorus, antrum and occasionally pars media, from the uninvolved proximal segment.

155 East Seventy-Second Street.

12. Bartlett, W.: Original Work on Exclusion of the Pyloric Antrum for Ulcer, Lancet-Clin., Cincinnati **114**: 98-104, 1915.

13. Burkhardt: Sollen wir bei Pylorus-Duodenal-Geschwür den Pylorus ausschalten oder nicht? Deutsche Ztschr. f. Chir. **172**: 332-346, 1922.

14. Lewisohn, Richard: Pyloric Exclusion, Surg., Gynec. & Obst. **22**: 379 (April) 1916.

15. Finsterer, Hans: Ausgedehnte Magenresektion bei Ulcus duodeni statt der einfachen Duodenalresektion bzw. Pylorusausschaltung, Zentralbl. f. Chir. **45**: 434, 1918.

16. Devine, H. B.: Basic Principles and Supreme Difficulties in Gastric Surgery, Surg., Gynec. & Obst. **40**: 1-16 (Jan.) 1925.

17. Devine, H. B.: Gastric Exclusion, Surg., Gynec. & Obst. **47**: 239-243 (Aug.) 1928.

18. Bancroft, F. W.: Modification of Devine Operation of Pyloric Exclusion for Duodenal Ulcer, Am. J. Surg. **16**: 223-230 (May) 1932.

19. Cunningham, W. F.: Partial and Subtotal Gastric Exclusion, Ann. Surg. **93**: 1167-1173 (June) 1931.

20. von Eiselsberg: Ueber Veratzungs-Stricturen des Pylorus, Arch. f. klin. Chir. **62**: 43-66, 1900; Zur unilateralen Pylorusausschaltung, Wien. klin. Wchnschr. **23**: 44-48, 1910; Behandlung der inoperabler Pylorusstricturen, Arch. f. klin. Chir. **132**: 1026, 1919; Unsere Erfahrungen mit der Behandlung des Magen- und Duodenal-Ulcus, Wien. klin. Wchnschr. **39**: 709-713 (June 17) 1926.

The Sense of Continuity.—In the continual remembrance of a glorious past, individuals and nations find their noblest inspiration; and if today this inspiration, so valuable for its own sake, so important in its association, is weakened, is it not because in the strong dominance of the individual, so characteristic of a democracy, we have lost the sense of continuity? As we read in Roman history of the scrupulous care with which, even at such private festivals as the Ambarvalia, the dead were invoked and remembered, we appreciate, though feebly, the part which this sense of continuity played in the lives of their successors—an ennobling influence through which the cold routine of the present received a flow of energy from "the touch divine of noble natures tone." In our modern lives no equivalent to this feeling exists, and the sweet and gracious sense of an ever-present immortality, recognized so keenly and so closely in the religion of Numa, has lost all value to us. We are even impatient of those who would recall the past, and who would insist upon the importance of its recognition, impatient as we are of everything save the present with its prospects, the future with its possibility.—Sir William Osler: Address delivered at Wistar Institute, 1894.

VALUE OF GORDON'S TEST IN DIAGNOSIS OF MEDIASTINAL HODGKIN'S DISEASE

REPORT OF TWO ILLUSTRATIVE CASES

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Recently we[1] reported a case in which the clinical and postmortem naked-eye observations were not conclusive of Hodgkin's disease. The efficacy of Gordon's[2] test (1932-1933) as a means of diagnosing lymphadenoma was tried out with postmortem material obtained from this case. The test gave a positive result in favor of lymphadenoma and this was corroborated shortly after by microscopic examination of the tissues. The first case to be described here is similar but even more instructive, since it demonstrates the value of the new test as a diagnostic procedure in circumstances in which not only the clinical and naked-eye observations but even histologic examination of the tissues left an element of doubt in the diagnosis. This case is also interesting in that it illustrates the change in cell structure which the Hodgkin's lesion may undergo in the course of two or three years. Finally there is appended a note on a case of bronchial carcinoma together with the result of Gordon's test in that condition. This note is added, since bronchial carcinoma is a lesion that must sometimes be considered in the differential diagnosis of mediastinal Hodgkin's disease.

REPORT OF CASES

CASE 1.—*Clinical History.*—A man, aged 59, a miner, admitted to the Royal Infirmary, Edinburgh, Nov. 15, 1933, under the care of Prof. Edwin Bramwell, complained of weakness and loss of weight (with a duration of nine weeks), dyspnea and cough (six weeks), anorexia and sweating (three weeks). The patient was well until about nine weeks before admission, when one day he had an attack of shivering and went home to bed. He did not stay in bed and during the next three weeks he had repeated slight shivers, sometimes two or three in a day. He felt himself getting weaker and people remarked that he was not looking well. Six weeks before admission he was compelled to take to bed because of weakness, and about the same time he began to have a cough and to be short of breath. He never saw any blood in his sputum, which was yellowish, scanty and difficult to expel. The bowels were constipated and during this time he lost weight rapidly. His appetite was poor. During the three weeks prior to admission he sweated profusely when asleep and latterly his sleep had been disturbed.

Two years before he had a swelling removed from the left side of the neck. This swelling had been present for four years, during which time it had enlarged slowly and latterly it had been red. About a year before admission he had noticed further swellings in the right side of the neck, but he did not think these had grown much lately. They had never been painful or tender.

Previous illnesses included typhoid and rheumatic fever. There was no family history of tuberculosis, but the patient lived in a small, insanitary and overcrowded house. He used to take a fair amount of alcohol.

Physical Examination.—The man looked ill, pale and emaciated but was cheerful and optimistic. There was considerable myotatic irritability. The skin was loose and atonic and the hair shabby and dry. The temperature was 101.4 F. The breathing was mainly abdominal and at the rate of 32 per minute. The chest was well formed but poorly clothed and moved equally on the two sides. There was no definite impairment of the percussion note, but a suggestive area of dulness was present over the middle zone of the right lung. The breath sounds on both sides were harsh and vesicular, with sibilant rhonchi toward the end of inspiration and some during expiration. Sputum was negative for the tubercle bacillus. A roentgenogram of the chest revealed a slight deviation of the heart and mediastinum to the right side, with infiltration of the medial part of the upper, middle and lower zones of the right lung; there was also thickening of the pleura in the lesser and greater fissures. The pulse was 136 per minute and regular in time and force. The blood pressure was 119 systolic, 65 diastolic. The heart sounds were pure but feeble. The abdomen was rather prominent. On the skin of the abdomen and lower part of the chest there was a yellow scaly lesion, which had been present since the Boer War. There was no abdominal rigidity or tenderness. No abnormal swellings were present and there was no enlargement of the liver or spleen. Many enlarged glands were present in the neck and axillae. The Wassermann reaction was negative. There was nothing to note in the nervous system.

Clinical Diagnosis and Termination of Illness.—In view of the clinical and radiologic evidence, a diagnosis of pulmonary tuberculosis was made. The patient unfortunately went rapidly downhill and died six days after admission.

Postmortem Examination.—Macroscopic: The body was somewhat emaciated. The pericardial sac contained a small quantity of clear serous fluid. The left pleural sac contained half a pint of slightly blood-stained fluid; the right contained a few ounces of similar fluid. The peritoneal cavity was healthy. In the right bronchus just beyond the bifurcation of the trachea there was a new growth in the shape of firm, whitish, slightly raised plaques. The growth extended down into the main branch of the right lower lobe and had actually spread for a short distance into the substance of this lobe. It extended upward into the trachea for 2 or 3 inches and also down the left bronchus and its larger branches. Both lungs were voluminous and emphysematous and showed marked carbon pigmentation. Numerous deposits of white tissue were scattered over the surfaces of both lungs. Patches of bronchopneumonia were present in the upper lobe of the right lung. The rest of the lung and also the left lung showed congestion, and the bases of both lungs were edematous. Large masses of glands were found at the roots of the lungs. These extended up the trachea and communicated with similar large glands in the anterior triangles of the neck. Masses of glands were found in both axillae, along the aorta and the common iliac vessels, at the porta hepatis, and along the superior border of the pancreas. In all these situations the glands were discrete, firm and elastic in consistency, and on section showed a whitish marbled surface. The heart was globular, owing to dilatation of all chambers. The myocardium was very pale and soft. The coronary vessels and the aorta showed slight atheroma. The esophagus, stomach and intestine were free from pathologic change. The liver was of average size but pale. It was dotted throughout by small white deposits, the largest of which was a centimeter in diameter. The spleen was three times its normal size and nodular on the surface. On section it presented a dark red surface, throughout which were scattered nodules of white tissue. The pancreas showed nothing of interest. The genito-urinary system, beyond the abnormal pallor of the kidneys, was normal. A large deposit about 2.5 cm. in diameter was found in the left parietal bone toward the vertex. It was similar in appearance and consistency to the glandular masses elsewhere. It involved the whole thickness of the skull but not the underlying dura. Other deposits were seen in several vertebrae (third, fourth, tenth and twelfth thoracic and first and second lumbar). The brain and its meninges were healthy, but the cerebral vessels were markedly atheromatous. The yellow marrow at the middle of the femur was replaced by whitish tissue.

1. Ogilvie, R. F., and van Rooyen, C. E.: Lancet 2:641 (Sept. 16) 1933.

2. Gordon, M. H., in Horder, Thomas: Rose Research on Lymphadenoma, Baltimore, William Wood & Company, 1932. Gordon, M. H.: Brit. M. J. 1:641 (April 15) 1933.

Microscopic: Tracheal and pulmonary growths consisted of polyhedral cells with a moderate amount of clear cytoplasm and a nucleus varying in size and chromatin content. These cells were for the most part distributed indiscriminately, but occasionally, especially in the pulmonary growth, they tended to assume a palisade arrangement, though no actual acini were formed. In the tracheal growth, cells were occasionally seen that were larger than the others with a single lobulated nucleus or with from two to six nuclei irregularly arranged toward the center of the cell. No such cells were observed in the pulmonary growth. Special staining revealed the presence between the cells of a fine supporting reticulum. This malignant-looking tissue was actively invading the mucosa of the trachea on the one hand and the alveoli of the lung on the other. Many mitotic figures were present throughout the tissue of both lesions.

In one of the lymph glands examined only a few small foci of lymphoid tissue were left. The remainder of the tissue presented appearances similar to those of the tracheal lesion, though small giant cells with single lobulated or several nuclei were rather more numerous, and there was no palisade arrangement. Between the cells was a very definite fine reticulum. In another gland widespread necrosis had occurred with hemorrhage and the formation of hemosiderin.

In the liver small foci of new growth had developed in relation to some of the portal tracts. The microscopic appearance of these and also of the growths in the spleen, marrow, skull and vertebrae was similar to that of the trachea and lymph glands already described.

Biologic Test.—A large gland removed from the left axilla was freed from superficial contamination by flaming with absolute alcohol, immersion in boiling water for two seconds, and subsequent removal of loose surrounding tissue. The gland was then divided with a knife and a portion (about 1 Gm.) was removed from the center. This was finely divided and thereafter emulsified with pestle and mortar in 20 cc. of broth of p_H 7.1. The emulsion was divided into two parts: one of these was used for the immediate intracerebral inoculation of three rabbits; the other was allowed to stand for seven days in a refrigerator at —4 C. and then was used for the inoculation of three additional rabbits. Inoculation consisted in the injection of 0.35 cc. of the suspension into the occipital lobe of each animal to a depth of 3 mm. This was accompanied by the administration of an intravenous dose of 0.5 cc. into the auricular marginal vein.

The three animals that were inoculated immediately with gland emulsion showed after four days signs of only slight ataxia, from which they rapidly recovered. The other three rabbits injected with emulsion which had been refrigerated for a week showed signs of gross nervous damage. These signs consisted of ataxia and incoordination setting in on the third day and progressing rapidly during the next few days to complete paralysis of the hind quarters with retraction of the head and nystagmus. On examination by aerobic and anaerobic methods of cultivation the brain and meninges of these animals yielded no growth. The test was therefore regarded as positive in favor of Hodgkin's disease.

COMMENT

The diagnosis of this case remained in doubt even after a naked-eye study of the organs and histologic examination of the various lesions. The main interest centers round the biologic test and the help it gave in determining the diagnosis.

The clinical diagnosis was pulmonary tuberculosis. Post mortem the diagnosis lay between (1) bronchial carcinoma and (2) Hodgkin's disease. The former was favored by (*a*) the age of the patient (59 years), (*b*) the presence of tracheal and bronchial lesions invading the right lung, (*c*) the presence in the pulmonary growth (right lung) of more or less columnar cells arranged in rows in the midst of an otherwise spheroidal-cell tissue, and (*d*) the indeterminate histology of the lesions in other organs. Points in favor of lymphadenoma were (*a*) a history of cervical glandular swellings for six years, (*b*) widespread lymphatic involvement (post mortem) and the character of the glandular masses, (*c*) involvement of the liver and spleen, (*d*) the presence in all the lesions of a fine but definite supporting reticulum, and (*e*) the occurrence in most lesions of cells like Hodgkin giant cells.

Although the weight of evidence was undoubtedly in favor of lymphadenoma, there yet remained an element of doubt. Consequently the result of Gordon's test was anticipated with interest and, as already indicated, it was positive. Since, moreover, bronchial carcinoma yields a negative biologic test (case 2) the lymphadenomatous character of this case seemed definitely established.

To complete the history, it should be stated that the gland which had been removed from the neck two years before death (1931) and examined elsewhere was later traced. It showed lymphoid hyperplasia with loss of gland architecture and in places proliferation of the endothelial cells, among which were a few giant cells with a single lobulated nucleus or two or three nuclei. The condition was histologically one of early Hodgkin's disease. The case is thus also noteworthy as illustrating how the lymphadenomatous lesion, from being more or less characteristic, may in the course of time develop very atypical features and assume malignant characters.

CASE 2.—*Clinical History.*—A man, aged 61, a railway porter, admitted to the Royal Infirmary, Edinburgh, under the care of Prof. W. T. Ritchie, Oct. 17, 1933, had had pain in the upper part of the left chest anteriorly for the past six months. For the past two months there had been a painful, tender swelling about 3.5 cm. in diameter over the second left costal cartilage. Until a fortnight before admission he had been in good health except for the painful swelling, but since then he had felt weak and breathless on exertion and had noticed that his ankles were swollen, particularly in the evening. He had had a slight cough for years.

Physical Examination.—The patient had an ashen complexion with a cyanotic tinge. Two firm tender lumps, each about 3 cm. in diameter, were present under the skin over the second left rib. The chest expansion was diminished. In the lower part of the right lung there were areas of low-pitched bronchial breathing with moist accompaniments, and in the left lung there was dulness with high-pitched bronchial breathing and whispering pectoriloquy. The cardiovascular, alimentary, genito-urinary and nervous systems showed nothing of interest. There was a slight degree of secondary anemia.

Postmortem Examination.—The lungs were moderately emphysematous and showed some basal congestion. The right lung was otherwise healthy. In the left bronchus just beyond the bifurcation of the trachea there was a nodule of neoplastic tissue in the process of invading the adjacent lung substance. The nodule was continuous in the anterior mediastinum with a large, firm, creamy yellow new growth consisting apparently of enlarged lymphatic glands. The upper part of the left lung was collapsed and heavily infected, owing to bronchial obstruction. The mediastinal mass also extended through the intercostal spaces to form two nodules below the left pectoralis major. The right kidney contained a single large mass of tumor tissue similar to that described. The left lobe of the prostate gland had in it a nodule which superficially resembled the tumors elsewhere. The liver showed marked chronic venous congestion. The spleen exhibited no noteworthy abnormality. The abdominal lymphatic glands, with the exception of one on the right renal vein, showed no malignant involvement.

Microscopic examination of the thoracic mass proved it to consist of adenocarcinomatous tissue. Much of the tumor was very undifferentiated, but acini occurred here and there. The neoplasm had induced the formation of fairly abundant stroma. The lymph glands and right kidney showed invasion by similar tissue. A prostatic nodule was adenomatous in character and microscopically did not resemble the other neoplasms.

Macroscopic and microscopic observations together indicated a bronchial carcinoma.

Biologic Test.—Three rabbits were inoculated after the manner already described with tissue taken from the enlarged lymph glands—one immediately, October 19 (the day of the autopsy), a second on November 1, and a third on November 8. The material used to inoculate the last two rabbits was kept in a refrigerator at —4 C. All the animals remained normal, and the test was therefore regarded as negative.

SUMMARY

In case 1 the clinical and postmortem (macroscopic and microscopic) observations, while favoring Hodgkin's disease, did not conclusively support such a diagnosis. Gordon's biologic test was applied. The test gave a positive result, thus supporting a diagnosis of lymphadenoma. Case 2 is one which macroscopically resembled Hodgkin's disease. It yielded a negative biologic test and was ultimately proved by histologic examination to be a typical bronchial carcinoma.

These cases illustrate the value of Gordon's test as a diagnostic procedure in circumstances in which Hodgkin's disease is suspected.

Teviot Place.

Clinical Notes, Suggestions and New Instruments

DINITROPHENOL POISONING: REPORT OF A CASE

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History.—J. M., a white woman, aged 42, married, a housewife, who weighed 70 Kg. (154 pounds), was advised by her physician to take dinitrophenol, 0.1 Gm., three times a day. Thirty capsules of sodium dinitrophenol 2-4 (Eastman Kodak Company) were taken with a weight loss of 4 pounds (1.8 Kg.) during ten days. There was no excessive sweating or other untoward symptoms, and with the telephonic consent of her physician the druggist supplied sixty more capsules. On the morning of the eleventh day, a slight rash, which itched moderately, appeared on the chest. On the night of the fourteenth day, a generalized erythematous papular eruption appeared over the whole body, including the scalp. These papules were hard and shotty, about 6 mm. in diameter, and raised 3 mm. There was considerable discomfort from itching. The use of the drug was discontinued and the usual measures of diet and therapy were instituted to obtain relief. Sixteen ounces (475 cc.) of magnesium citrate solution was immediately ordered, sodium bicarbonate baths, and alkaline mineral water in large quantities. Only sugar (candy), milk and water were taken in the diet, as the patient's appetite had disappeared. Calcium gluconate, small doses of mild mercurous chloride and atropine were ordered four times daily but had little effect, and the atropine was stopped after twenty-four hours. The itching became intolerable and the patient scratched her skin until blood appeared. She was restless, showed a marked trembling which was almost constant, and exhibited great anxiety. The temperature was raised and the pulse rapid. Ephedrine, three-eighths grain (0.024 Gm.), and epinephrine hydrochloride, 10 minims (0.6 cc.), by hypodermic injection, relieved these symptoms for one to two hours. Later codeine, one-fourth grain (0.016 Gm.), and amidopyrine, 5 grains (0.3 Gm.), was given for pain.

On the fifteenth day, both hands and feet swelled to twice their normal thickness and the palms and soles were especially painful and itching. A wedding ring had to be clipped from the finger at 5 a. m. The papular eruption changed to large yellowish white wheals with reddish areas of skin between. The eyelids were swollen shut and the ears, neck and face distorted by swelling. The fingers could not be flexed, and it was impossible to grasp a water glass because of their stiffness. The patient was in great agony and had to be removed to a hospital for continuous nursing care. The trembling persisted to a marked degree. The skin was hot and dry, although the patient felt chilly. She continued anxious and weak. The pulse range was between 120 and 140; the temperature, from 102 to 103 F.; the respiration rate, 24 to 30. The blood pressure was 128 systolic, 58 diastolic. The urine was scant (300 cc. in twenty-four hours) despite forced fluids. The Derrien test for dinitrophenol was positive in the urine. Smell and taste had disappeared. There was marked pain in the region of the antral and frontal sinuses. There was yellowish discoloration of the sclerae, and the urine and blood serum were stained a deep yellow.

The pruritus and edema of the skin reached their height on the fourth day following the onset of the toxic symptoms, and during these four days the patient had slept but one hour at long intervals, usually following injections of pantopon, one-third grain (0.02 Gm.), or morphine, one-fourth grain (0.016 Gm.), given for pain and restlessness, and epinephrine and ephedrine for the pruritus. These were given as often as every four hours on the fourth day and less often on the other days. On the fifth day the eyes could be opened and the skin lesions were less pronounced, but these still recurred in waves. The mucous membranes now became affected, and there was intolerable vaginal pruritus, burning on urination, and soreness of the mouth and esophagus. The lips suddenly began to burn and smart, and swelled greatly. These symptoms continued for thirty-six hours. On the sixth day there were isolated patches of urticaria on the dorsum of the hands and feet, about the joints and in the lumbar region. The sinus pain had disappeared and the urine was light, natural colored and abundant (2,000 cc.). The patient fell into a sound sleep. Twice daily a gallon of sodium bicarbonate solution was used as a colonic irrigation, and hot boric packs were applied continuously to the region of the kidneys until there was abundant elimination. Daily cathartics were given. Local applications of calamine lotion, aluminum acetate solutions, and alkaline pastes has no effect on the pruritus. Olive oil rubs to soften the dense induration of the skin gave some relief. On the seventh day the Derrien test was negative in the urine, the temperature and pulse had returned to normal, and there was moderate pruritus, trembling and erythema, which was controlled by ephedrine. The skin was covered with scratch marks and showed desquamation. Appetite, taste and smell were normal, and the patient was discharged from the hospital. There was a further loss of 4 pounds after the onset of the toxic symptoms, while the patient was on a sugar, milk and water diet.

Previous History.—The patient had diphtheria at 8 years of age, for which antitoxin was administered. A tonsillectomy at 28 years required hemostatic serum for the control of hemorrhage. A marked urticaria followed this injection.

Laboratory Examination.—Miss Isaacs of Highland Park Hospital made the following observations:

Fourth Day: The urine was yellow and alkaline, with a specific gravity of 1.023. It was positive for albumin, sugar and acetone and was negative for diacetic acid. Phosphates were present. The Derrien test was positive.

Fifth Day: The urine was yellow and neutral, with a specific gravity of 1.007. Albumin was present and sugar was absent. Dinitrophenol was present by the Derrien test.

Sixth Day: The urine was yellow and neutral, with a specific gravity of 1.009. There was a trace of albumin. The reaction for dinitrophenol was negative.

Blood examination revealed: hemoglobin, 102 (Sahli); leukocytes, 11,500; red blood cells, 4,090,000; polymorphonuclears, 84 per cent; polymorphonuclear eosinophils, 0; lymphocytes, 11 per cent; monocytes, 2 per cent; 3 irritation cells.

Chemical examination revealed: icterus index, 20; Van den Bergh, direct test, negative; indirect test, faintly positive; sugar, 90; nonprotein nitrogen, 27; uric acid, 3.5; Fouchet's test, negative. Three days later the icterus index was 5.3.

An electrocardiogram was negative.

COMMENT

There was a history of allergic reaction to horse serum only. As there was no history of chronic rheumatism, alcoholism, tuberculosis, renal disease or hepatic disease in this patient, or other forms of allergy, there were no contraindications to

its use as prescribed by Cutting, Mehrtens and Tainter.[1] It might be asserted that the dose of 0.3 Gm. daily was too large for a woman of 70 Kg., but this seems to be the dose generally prescribed in the cases I have since investigated in this vicinity.

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UMBILICAL ENDOMETRIOMA

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Attention was called by Babes as early as 1882 to the occurrence of ectopic endometrial tissue in a myoma uteri. In 1883 and 1896 Diesterweg and von Recklinghausen, respectively, wrote on similar observations. These reports were the first of a series by authors who found endometriosis (Sampson) to involve the female adnexa, peritoneum, broad ligaments, abdominal muscles, umbilicus and other viscera.

The following is a brief review of the various theories concerning the origin of ectopic endometrial tissue:

1. The wolffian theory. Origin from the mesonephros was supported by von Recklinghausen. This theory held sway until 1903, when Cullen demonstrated that the glandular inclusions in adenomyoma uteri were due to direct invasion of the uterine muscle from the mucosa.

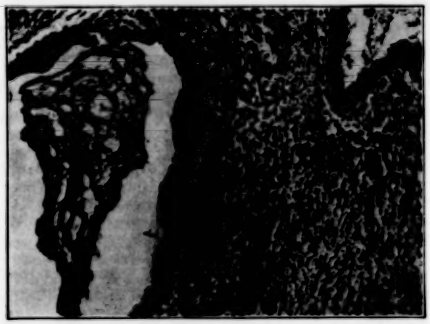

Fig. 1.—Compact stroma surrounding the gland on the left. There is some mucin and cellular débris in the lumen.

2. The muellerian theory. This conception has been utilized to explain the presence of endometrial tissue in such locations as the umbilicus, inguinal region and rectovaginal septum, on the basis of embryologic misplacement of muellerian tissue. As yet, no satisfactory explanation of the mechanism involved has appeared in the literature.

3. Serosal heterotopy. Practically all German writers appear to support this theory on the ground that the peritoneum and the germinal epithelium of the ovary are capable of undergoing a metaplasia secondary to an inflammatory stimulus or, as Novak contends, secondary to an endocrine stimulus.

4. Theory of implantation. Many in America and England support Sampson's theory of endometrial regurgitation through the fallopian tubes at the time of menstruation. There are others, however, who object to this theory on the ground that the viability of menstrual epithelium has never been proved. This explanation, if correct, would account for the presence of endometrial tissue in the umbilicus on the basis of lymphatic dissemination.

Cases of endometrioma of the umbilicus are not frequently encountered. Only thirty cases were reported up to 1926, and Spitz[1] succeeded in collecting the reports of only fifty-four cases up to 1932. Of the latter, fifteen were reported in the United States. The *Quarterly Cumulative Index Medicus* notes the report of another in France in February 1933.

This type of tumor occurs exclusively in women, usually during the fourth decade, although it has been found in a girl, aged 18 years. The symptoms of pain and swelling referrable to the mass, which at the time of the menstrual cycle may appear cyanotic, are most frequently complained of. Vicarious

Fig. 2.—The same features are to be noted here as in figure 1.

menstruation from sinuses has been reported in many cases. Natural or artificial inhibition of the menses has relieved the symptoms permanently in many cases.

REPORT OF CASE

Mrs. L. R., aged 36, white, admitted as a private patient of B. G. S., Jan. 5, 1934, complained chiefly of pain and swelling and purple discoloration of the umbilicus since August 1933. The pain became more marked over a period of weeks and more so at the time of menstruation, when the umbilicus seemed to take on a darker purplish hue. It never discharged. The familial history and that of previous illness were negative. Her periods started at the age of 14, occurring every twenty-eight days and lasting from five to six days, although, during the past four months, they persisted for eight or nine days. There was no history of abdominal pain at the time of any

Fig. 3.—The type of epithelium is more clearly portrayed in this field.

menstrual cycle. The patient has a 9 year old child living and well and had one miscarriage at six and a half months.

The physical examination was irrelevant except for the umbilicus, which appeared bluish, measured 1 by 1 by 2 cm., was tender and nonfluctuating, and seemed freely movable.

At operation, we excised the mass without opening the peritoneal cavity, with which it did not communicate. The wound healed by primary union.

1. Cutting, W. C.; Mehrtens, H. G., and Tainter, M. L.: Actions and Uses of Dinitrophenol, J. A. M. A. **101**:193 (July 15) 1933.

From the Morristown Memorial Hospital.

1. Spitz, Herman: Adenomyoma (Endometrioma) of Umbilicus, Am. J. Clin. Path. **2**:155 (May) 1932.

On section the gross appearance of the cut surfaces was that of fibrous tissue containing several small cysts, from which a viscid brown fluid exuded. Microscopically there were seen many glands of varying size. Some of these glands were cystic in appearance and were lined by columnar or cuboidal epithelium. There was also evident a small quantity of mucin

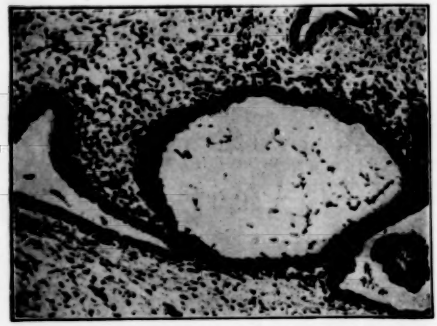

Fig. 4.—Cystic dilatation.

and cellular débris in the lumens. The glands were surrounded by a cytogenic compact stroma, which resembled that of uterine mucosa. There was present in various parts of the section blood pigment, which occurred also in some of the phagocytes.

The pathologic diagnosis was umbilical endometrioma.

Therapeutics

THE THERAPY OF THE COOK COUNTY HOSPITAL

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NOTE.—*This series of articles constitutes the therapy recommended by the chiefs of staff and their associates in the Cook County Hospital. In the preparation of these articles, the copy is submitted to the various members of the staff by the director of therapeutics, Dr. Bernard Fantus. The views of the various members are summarized, after which a final draft is prepared for publication. Thus, in the article on insomnia, which follows, fifteen physicians presented their views, and in others anywhere from five upward. The series of articles will be continued from time to time in these columns.*—ED.

THERAPY OF INSOMNIA

Sleep is even more necessary for the maintenance of life than is food, for one cannot live as long without sleep as one can without food. Sleep is generally more important than medicine. Hence the patient's sleep should not be disturbed for medicinal treatment, unless continued effect is extremely important, when it should be definitely stated in the written order.

1. *Comfort.*—The patient should be made comfortable as he understands comfort. The patient's sleeping habits as regards the number and size of pillows and the bed covering should be respected. A patient who has not slept well during the night and has just fallen asleep in the early morning hours should not be disturbed for the morning toilet. Better that the patient eat unwashed than die from exhaustion induced by insomnia.

2. *Psychotherapy.*—As worry is one of the most potent causes of insomnia, the worry about insomnia constitutes a vicious circle that must be broken by whatever means may be required. The patient should understand that the time he sleeps seems short, that the time he lies awake seems long, and that a very few hours of sleep (possibly two) suffice to maintain life, the rest being more or less of a luxury. Reading and, better still, being read to, may take one's mind off worry and thus be sleep inducing. Suggestion plays an important part in the induction of sleep, and many an innocent and yet effective measure, such as "counting sheep" or focusing one's eyes at the tip of one's nose, depends on it. Suggestion, occasionally even in the "hypnotic" state, is the hypnotic to be used in hysteria, in which the medicinal hypnotics, even morphine, often fail. Reasoning and persuasion should be employed in neurasthenia, as well as psychoanalysis which, even in its nontechnical sense, is often of value in sleep-preventing phobias; and mental hygiene as well as physical hygiene in any case of "nervousness" as, for example, elimination of excessive nerve tire produced maybe by a fifty mile ride to a suburban home or working at home after hours.

3. *Physical Measures.*—The proper balance between rest and exercise holds the secret of sleep. Insufficient as well as excessive fatigue may make sleep impossible. Physical exertion may help one person's insomnia while aggravating that of another. In the latter case, rest treatment is indicated. Many a bed patient sleeps better for slow gentle massage or even a back rub at bedtime; sedative hydrotherapy, as a prolonged (one-fourth to one-half hour) warm (96 F.) bath or cold wet pack of three quarter to one hour's duration; or even an abdominal or leg compress (a moistened stocking covered by a dry one). In cases of insanity the neutral bath for two or three hours or even applied continuously is a useful calmative measure, especially when combined with an ice cap. Appropriate antipyretic hydrotherapy is one of the best means of quieting the restless fever patient, the ice cap to lessen febrile delirium. A night cap should be used for the bald. Coldness of the feet may be antagonized by a hot foot bath, followed by brief cold affusions and a dry rub or by a hot water bottle to the feet (care being taken against burns). Warm blankets to the legs or woolen socks to the feet may suffice. The hypnotic value of the air bath deserves consideration; walking about in one's bedroom naked (except possibly for stockings and slippers) or even throwing off the covers while one is in bed and exposing the body to cool air for a short time may, on subsequent covering, induce as the "reaction" the skin hyperemia requisite for sleep.

4. *Diet.*—Avoiding large evening meals is especially important for those with poor digestion or circulatory debility, for whom the evening meal should be the lightest of the day. For those distressed by flatulence, the amount of starchy foods, fruits and vegetables should be reduced. Tea or coffee should be interdicted, especially at or near bedtime. On the other hand hunger may keep one awake, and a glass of hot milk with a cracker has hypnotic potency in such cases and might be a standing order against insomnia, unless of course the milk interferes with the fundamental dietary plan of treatment.

5. *Relief of Distresses That Tend to Disturb Sleep.*—Rapid heart beat may be combated by a cold precordial compress or an ice bag wrapped in flannel;

dyspnea by elevation of the trunk to almost a sitting posture (see also dyspnea); cerebral congestion by cold to the head, heat to the feet, and magnesium sulphate (30 Gm.) taken in concentrated solution during the day. To one distressed by a "heavy" meal, lemon juice may give relief. Flatulence may be antagonized by valerian (ammoniated tincture from one-half to

PRESCRIPTION 1.—*Sodium Bromide*

℞ Sodium bromide ..... 30.00 Gm.
Water ..... 30.00 cc.
Syrup of glycyrrhiza.....to make 120.00 cc.

One teaspoonful in water (or milk) after meals and two teaspoonfuls at bedtime. (Watch for bromoderma.) If there is a tendency to acne, the addition of solution of potassium arsenite (prescription 2) may lessen it. (Price index, 1: the approximate price per dose as compared with chloral, 1.)

PRESCRIPTION 2.—*Sodium Bromide and Solution of Potassium Arsenite*

℞ Sodium bromide ..... 30.00 Gm.
Solution of potassium arsenite..... 10.00 cc.
Water ..... 30.00 cc.
Syrup of raspberry.....to make 120.00 cc.

A teaspoonful or two in water (or milk) at bedtime. (Watch for bromoderma.) (Price index, 1.)

PRESCRIPTION 3.—*Valerian*

℞ Elixir of ammonium valerate..... 60.00 cc.
Elixir of sodium bromide..... 60.00 cc.

From two to four teaspoonfuls in water at bedtime. (Watch for bromoderma.)

PRESCRIPTION 4.—*Carbromal*

℞ 25 Carbromal tablets, each..... 0.30 Gm.

One or two at bedtime. (May cause bromoderma.) (Price index, 20.)

PRESCRIPTION 5.—*Barbital*

℞ Barbital ..... 2.50 Gm.
Divide into ten capsules.

Two with hot fluid two hours before bedtime and a third capsule may be given in two hours, if required. (Price index, 5.)

PRESCRIPTION 6.—*Phenobarbital*

℞ 10 Phenobarbital tablets, each..... 0.10 Gm.

One or two, one hour before bedtime (three should not be exceeded.) (Price index, 7.)

PRESCRIPTION 7.—*Elixir of Phenobarbital*

℞ Elixir of phenobarbital..... 60.00 cc.

From one teaspoonful to one tablespoonful at bedtime (each teaspoonful contains 0.03 Gm. of phenobarbital.)

1 teaspoonful) if gastric or by asafetida (0.3 Gm. capsules) if intestinal, or a turpentime enema. Against nycturia, ingestion of fluid in the afternoon and evening should be restricted. For pain, analgesics should be prescribed; against cough, expectorants.

6. *Sedatives.*—In conditions of exaggerated nervous irritability, bromide (prescription 1 or 2), though not a hypnotic, often favors sleep. It is perhaps best given at first in divided doses after meals and at bedtime and, when improvement has set in, at bedtime only. Bromide should not be used in the insomnia of profound nutritional exhaustion of the brain or for those with acne. Valerian (prescription 3), especially when combined with bromide may be useful in insomnia accompanied by flatulence or palpitation, or when due to hysteria or dissimulation. Somewhat more powerful is carbromal (adalin, prescription 4), a sedative intermediate in potency between bromide and the true hypnotics. Acetylsalicylic acid and amidopyrine (either of them as a 0.3 Gm. tablet) are sedative besides having analgesic, antipruritic and antipyretic value, and they favor sleep, especially when given with bromide.

7. *Hypnotics.*—These should be given only when other measures, including sedatives, have failed or probably will fail; and even then only temporarily to break in on the vicious circle of excessive fatigue-insomnia. In milder cases of insomnia, partial sleeplessness is better than hypnotics with their frequently disagreeable after-effects and habit-producing tendency. They must nevertheless not be withheld when they are actually needed. They may be life saving for a patient, fighting a serious disease such as pneumonia, who may succumb from lack of sleep, when the skilful use of hypnotics and letting him sleep as much as possible day or night may tide him over the crisis. Hypnotics are indispensable in conditions of great excitement, as in the psychoses and in febrile delirium. In these, 0.5 mg. of scopolamine (hyoscine) hydrobromide hypodermically often acts best. At present barbital (veronal, prescription 5) in milder cases and phenobarbital (luminal, prescription 6 or 7) in more severe cases are the most popular. The barbiturates are useful when there is great restlessness in conditions of circulatory excitement; also in the presence of pain (especially when combined with coal tar analgesics). They are somewhat slow in acting, and hence had better be given one or two hours before the desired effect, and with hot fluid. As there may be sufficient residual sedative effect for one dose to favor sleep on the next night, it is good policy to order the hypnotic taken only if necessary on a night succeeding a sleepless night. In the presence of vomiting, phenobarbital sodium (prescription 8) may be given intramuscularly.

PRESCRIPTION 8.—*Phenobarbital Sodium*

℞ Phenobarbital sodium ..... 0.12 Gm. ampule

Dissolve in 1 cc. of sterile distilled water and inject intramuscularly.

PRESCRIPTION 9.—*Chloral Hydrate*

℞ Chloral hydrate ..... 15.00 Gm.
Fluidextract of glycyrrhiza..... 30.00 cc.
Syrup of orange.....to make 60.00 cc.

One teaspoonful in water (or milk) at bedtime. Repeat hourly—not more than twice—if patient is not asleep. (Price index, 1.)

PRESCRIPTION 10.—*Chloral Hydrate Rectally for Children*

Children's dosage of chloral hydrate given in starch water as retention enema.

From 1 to 2 months..... 0.10 to 0.15 Gm.
From 1 to 2 years..... 0.50 to 0.80 Gm.
6 years..... 1.00 Gm.
From 10 to 14 years..... 1.50 to 2.00 Gm.

Contraindicated by cyanosis or impairment of circulation.

PRESCRIPTION 11.—*Paraldehyde*

℞ Paraldehyde ..... 30.00 cc.
Compound spirit of orange..... 30.00 cc.

A teaspoonful or two in sweetened iced tea every hour until patient is asleep. (Price, index, 3.)

PRESCRIPTION 12.—*Paraldehyde for Rectal Administration*

℞ Paraldehyde ..... 30.00 cc.
Alcohol ..... 30.00 cc.

Two teaspoonfuls in two tablespoonfuls of warm water as a retention enema.

PRESCRIPTION 13.—*Sulphonethylmethane*

℞ Sulphonethylmethane ..... 5.00 Gm.
Divide into ten capsules.

One or two with hot fluid at bedtime (when patient awakens too early). Must not be continued for a long time on account of liability to hematoporphyrinuria. (Price index, 8.)

PRESCRIPTION 14.—*Codeine*

℞ Codeine phosphate ..... 0.50 Gm.
Syrup of eriodictyon ..... 60.00 cc.

A teaspoonful or two in water at bedtime. (Price index, 12.)

PRESCRIPTION 15.—*Morphine and Chloral*

℞ Morphine sulphate ..... 0.13 Gm.
Chloral hydrate ..... 15.00 Gm.
Fluidextract of glycyrrhiza..... 30.00 cc.
Syrup of orange.....to make 60.00 cc

One teaspoonful in water at bedtime. Repeat once in an hour, if required. (By replacing each dose taken from the bottle with an equal amount of water, the medicine may continue to have a satisfactory effect, even though its strength becomes gradually less.)

A differentiation must be made between sleep-inducing and sleep-maintaining hypnotics. Among the rapidly acting sleep-inducing hypnotics, especially indicated when the patient has difficulty in falling asleep, chloral hydrate (prescription 9) is the most potent. It is especially beneficial in sleeplessness accompanying high blood pressure. It must be used with caution

when the circulation is enfeebled. It offers the greatest amount of hypnotic power per unit price. For children, its rectal administration (prescription 10) is the sovereign remedy, to be preferred to an opiate, even in the presence of pain, and to be shunned only in marasmus and if there is cyanosis. In cases in which chloral is prohibited, paraldehyde (prescription 11) acts rapidly and causes less depression to the circulation than any other hypnotic as powerful, but it has a most disagreeable odor, which it also imparts to the breath during elimination. In maniacal and delirious conditions it is best given by rectum in doses of from 4 to 8 cc. mixed with an equal amount of olive oil or, when most rapid action is desired, with an equal volume of alcohol in 10 per cent aqueous solution (prescription 12). When the patient awakens too early, sulphonethylmethane (trional, prescription 13) may receive preference. The opiates are particularly valuable when pain or respiratory distresses interfere with sleep. Codeine (prescription 14) should be preferred whenever possible, but in severe conditions nothing does as well as morphine sulphate (from 0.010 to 0.015 Gm.) hypodermically. Morphine should be avoided when there is pruritus or a tendency to urinary retention, and paraldehyde should be used. In obstinate insomnia, as that of delirium tremens, that resists these agents in safe doses given singly, results may be secured by combination of differently acting hypnotics, as morphine and chloral (prescription 15), which may, in a desperate case, be reinforced by scopolamine hydrobromide (0.5 mg.) given hypodermically and by paraldehyde given by rectum. In the insomnia of psychoneurosis, euphorics, such as alcohol, opium, morphine, diacetylmorphine or cocaine, are strictly contraindicated. On the other hand, the hypnotics of the barbital series (barbital, phenobarbital) are often usefully prescribed even at the outset to break in on the vicious circle of neurosis-insomnia, in addition to appropriate psychotherapy and physical therapy. When the patient has had a fair number of nights of sound sleep, the medicine may be progressively reduced in strength to nothing, and this may be concealed from the patient until after the medicine has been discontinued; or, better, the patient's cooperation may be secured by having a dose of the drug within easy reach so that he might take it if required. The knowledge of having a positive remedy available will often give the patient the assurance necessary for repose, and he may not need the hypnotic. In any case, the use of hypnotics should not be continued for more than two or three weeks without endeavoring gradually to reduce the dose or to change the remedy. "Do not refill" should be written on every such prescription, and a supply for only a few days at a time should be ordered. The patient should be seen frequently enough during this period so that one can check up on the condition of sleeplessness, the existence of any toxic effects, or the advisability of decreasing or of increasing the dose or changing the drug.

8. *Use of Stimulants.*—Such stimulants as caffeine or ephedrine, which ordinarily keep most persons awake, may relieve the insomnia of patients with hypertension, disturbed by cramps in the legs. Such agents are similarly valuable for patients unable to sleep by reason of Cheyne-Stokes breathing, which is generally made worse by the hypnotics mentioned. Strychnine also favors sleep in such cases, as well as in cases in which there is deficient aeration of the blood, as in emphysema with chronic bronchitis.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE AND REPORT. H. A. CARTER, Secretary.

THE TEACHING OF PHYSICAL THERAPY TO UNDERGRADUATE MEDICAL STUDENTS

IRVING S. CUTTER, M.D.
AND
JOHN S. COULTER, M.D.
CHICAGO

No matter how vigorously the medical profession may deny utilitarian objectives in medicine, the physician, after all, to his patients in general is a healer, and his duty to the individual who is ill involves the use and application of all therapeutic measures conducive to the restoration of that patient to health. Many graduates are handicapped because of inadequate emphasis on therapeutic resourcefulness. Too often the clinical teacher gives the impression that, if a correct diagnosis is made, the treatment is easy. The patient desires to get well; hence, in the practice of medicine, therapy requires attention at least equal to that devoted to diagnosis.

There is, we believe, a growing consciousness on the part of the medical profession of the great value of the numerous procedures known as physical therapy. Realization of this has been aided by the establishment of the Council on Physical Therapy of the American Medical Association, and its publication of conservative articles on this subject, which have recently been collected in the Handbook of Physical Therapy.

Needless to say, physical therapy is probably one of the most misunderstood subjects in medicine. Its place in treatment is a matter of controversy, and, in the minds of many, the very mention of physical therapy recalls the picture of a room filled with a large assortment of brassy, shiny, complicated, electrical machines and lights. Certain physicians feel that some physical therapeutic procedures may be of value, but they mistrust them for their patients because of inability to advise the correct treatment. This is due, in some measure, to the high powered sales organizations of certain manufacturing concerns which have flooded the market with physical therapy equipment, and the conscientious physician, anxious to serve his patients, is too often driven to the purchase of equipment the use of which he does not understand, the application of which he knows but little about, and of the dangers of which he is unaware. It is essential, therefore, that students should know that it is not necessary to possess elaborate apparatus in order to apply physical therapy; the best physical agents to use are usually the cheapest, the simplest and the easiest obtained—heat, massage, exercise and water. These can be used by any physician in any place if he has had proper instruction in their application.

The present generation has witnessed an abrupt swing from polypharmacy to the use of a few drugs—that use based on sound physiologic principles. The coming generation will witness a swing away from the use of elaborate machines in physical therapy to the use of simple agents applied by physicians with a knowledge

of their physiologic action, the pharmacology of physical therapy.

If the medical student can be taught to use simple physical agents, and, if he knows how to instruct his patient in their use in the home, substantial progress will have been made. The "chronic" is the bugbear of medical practice and but few physicians have devoted real study to the plight of this distressing group, the members of which furnish the irregular cultist with most of his patients.

The time must soon come when as intensive study will be directed toward the amelioration of chronic ailments as has been devoted to diabetes, pernicious anemia and thyrotoxicosis. With the development of a program of treatment for chronic cases, such as a group of patients with arthritis, home agents being used for prolonged periods, as much may be accomplished as could be accomplished by means of prolonged sanatorium management, if not more.

The value of physical therapy is evidenced in the reports of its use in all branches of medicine. A prominent surgeon recently stated, "I look to the more general and intelligent use of physical therapy, not by physical therapists but by physicians, as the means of making the next great advance in the treatment of fractures." A distinguished internist has recently stated that physical therapy must take its place at the head of the various forms of treatment directed toward arresting the progress of cardiovascular disease. He says:

> There are two main reasons why, in the treatment of cardiovascular disease, physical therapy has been practically ignored in this country:
>
> First, that from lack of training or interest or both, the average American physician knows little of the types of physical therapy that may help cardiovascular patients and still less concerning the effective, detailed manner of applying treatment. Lack of interest usually accompanies lack of knowledge concerning a given subject.
>
> Second, that following the usual rule of supply and demand, since there has been no demand for thermal stations, spas or establishments in which physical therapy is properly given in this country, relatively few such establishments are available.

Lewinsky-Corwin says:

> The problem of chronic disease is an important social problem which the medical profession will some day be forced to realize and meet in an adequate manner. There is no doubt that the failure on the part of the medical profession at large to employ all the means at its disposal to deal with chronic disease has been responsible for the growth of cults. The relief which many patients receive from the administration of the various kinds of physical and psychic therapy practiced by the exponents of these cults has resulted in the development of spurious practices which often are as injurious to the individual and inimical to the public health as they are lucrative.

In a recent analysis of fifty hospitalized cases of chronic arthritis in the Mayo Clinic the following facts appear: Although the average duration of these cases was 5.7 years, only sixteen patients had been advised by their regular physician to have massage, only eight had been given exercises, corrective or preventive, and only four had been given supervised applications of heat for a period longer than two months. About half of this group had been sent to spas or other sanatoriums, which would indicate that the importance of physical therapy had been partially recognized.

The foregoing would seem to indicate that every medical graduate should have received some instruction in physical therapy. At Northwestern University Medical School, in the eleven lectures allotted to physical therapy two are given to a review of physics of electrical and radiant energy.

The subject must then be approached not as a specialty but as a part of general medicine—not, as some one has said, by a fragment of an educator addressing himself to a fragment of a student on a fragment of a subject. Furthermore, physical therapy must be coordinated so that it will not be independent but correlated with the regular course in therapeutics.

To demonstrate the beneficent rôle of physical therapy, clinical dispensary and hospital physical therapy departments must be established. These departments should be reference departments. All cases would come from other clinical departments, the necessary laboratory and clinical examinations having been made. The patient would be accompanied by a request for treatment, to be prescribed by the referring physicians or the physicians of the physical therapy department, and executed by technicians who should be graduates of a school approved by the American Physiotherapy Association.

This department would be under the division of medicine with the director a member of that division and having the qualifications suitable for the rank of associate or assistant professor.

As the clinical departments of the medical school become familiar with the activities of the physical therapy department, the medical student will be taught physical therapy in all the clinical departments with the burden on the department of physical therapy proper to demonstrate the technic and detailed administration of physical agents.

It is also desirable to have a physicist in this department or have some direct connection with the department of physics. In the physical therapy department of Northwestern University Medical School we have a lecturer on applied physics, who gives two lectures on these subjects each year to the undergraduates. He also aids in the solution of research problems that are submitted to the physical therapy department by other clinical departments. In the last year some of these have been a method of measuring dosage of ultraviolet radiation in skin diseases, the method and amount of high frequency current to be used in an eye operation, the method for the use of high frequency currents in nose and throat cases, and an electrical cutting device for the genito-urinary department and for the neurologic division.

The dispensary clerks come in contact with these problems also and thus appreciate the value of a knowledge of the physics of these subjects.

After much experimenting at the Northwestern University Medical School, extending over six years, we believe that this subject can be taught only with a minimum of eleven lectures. This does not mean that a recommendation of this number of hours has been adopted as a requisite by the Council on Physical Therapy. This should be given to the junior class. The subjects of these lectures cannot be given in detail in this paper, but the Council on Physical Therapy will furnish a synopsis of these lectures on request. It is a required course for the whole junior class. The textbook is the Handbook of Physical Therapy, edited by the Council on Physical Therapy and published by the American Medical Association.

The object of these lectures is to impress the medical student with the use of simple agents of physical therapy and to prescribe these as he would drugs. In order to make this prescribing possible, we have directions mimeographed for the home use of heat, massage and exercises. The importance of a program of treatment is outlined, where instructions in the use of these physical agents are given to the patient and some member of his family. The medical student is also taught the physics of electricity and radiation. As these topics are each the subject also of a clinical lecture, the medical student will be enabled to judge the value of these machines and lamps himself and not have to take instruction from the manufacturers of such apparatus.

In the senior year, students in groups of two or four spend eight periods of two hours each in the physical therapy department of our dispensary. Here forty patients are treated daily. The medical students here actually observe the uses of these physical agents.

MODEL "C" KROMAYER LAMP ACCEPTABLE

The Hanovia Chemical and Manufacturing Company has submitted for the Council's consideration a recent addition to its line called the Model "C" Kromayer Lamp. The company claims that this lamp is designed especially for irradiation of various body cavities. Several sizes and shapes of burners are available (CR-2, CN-3, CS-4 and CU-5). The burners are of transparent fused quartz, shaped in the form of applicators, closed at one end, and contain mercury and certain rare gases such as krypton, neon and xenon. At the other end they terminate in hard rubber holders 6½ inches long and 1¼ inches in diameter. The electrodes and and lead-in terminals are enclosed in the holders, and each burner and holder has its own flexible connector with terminal pins attached to the electrical control box. The box contains a step-up transformer and regulating choke coil.

Model-C Kromayer Lamp with Lowsley-Wang Burner (Cu-5).

The light from the mercury glow completely fills the quartz tubes of the burners and, of course, the energy is emitted from the sides of the tube as well as the ends. The electrical characteristics are as follows:

110-volt, 60-cycle alternating current					
Electrical current to controls					0.6 ampere
Maximum wattage					20.0 watts
Voltage delivered to burner					1,500.0 volts
Maximum wattage in burner					10.0 watts
Erythema Time on Untanned Skin (in seconds)					
Burner	CR-2	CN-3	CS-4	(Lowsley-Wang)	CU-5
First intensity	60	20	30		25
Second intensity	38	12	17		15

One unit was examined in a physical laboratory acceptable to the Council. The report reads:

"We have examined the spectral radiation from the tip of the Lowsley-Wang burner (CU-5) and have found that 94% of the total radiation of wavelengths shorter than, and including 3,130 A, is concentrated in the wavelength at 2,537 A. This is in agreement with the manufacturer's claims that 'about 90% of the therapeutic ultraviolet is concentrated in the wavelength at 2,537 A.'"

One unit was also investigated in a clinic acceptable to the Council. The clinical claims made for it by the Hanovia Chemical and Manufacturing Company were in agreement with the Council's findings. Furthermore, the advertising matter apparently conforms with the Official Rules of the Council. Therefore, the Model "C" Kromayer Lamp (including burners CR-2, CN-3, CS-4 and CU-5—Lowsley-Wang) is included in the Council's list of accepted devices.

Committee on Foods

The Committee has authorized publication of the following amended general decision. Raymond Hertwig.

VITAMIN CLAIMS IN FOOD ADVERTISING

Indefinite or general vitamin claims are vague, noninformative and misleading and do not permit a distinction between foods as sources of the respective vitamins. Vitamin claims shall stipulate the specific vitamin or vitamins present. Vitamins present in a food in insufficient quantity to contribute in any significant manner to the respective vitamin values of the diet do not warrant mention. It is desirable that warranted vitamin claims be expressed in appropriate terms indicative of the relative potency of the food as a source of the vitamins in the dietary schedule. Foods may be considered relatively as fair, good and excellent or rich sources of vitamins. Statements of vitamin unitage in numerical quantities per gram (and per ounce if desired), where established, are to be encouraged on container labels and in advertising. The type of unit used should be specified. These statements shall be so expressed as not to be misleading.

Relative distribution of the vitamins in the various foods is presented in tables by Sherman (Chemistry of Food and Nutrition, fourth edition, 1932), by Rose (Foundations of Nutrition, revised edition, 1933) and by a committee appointed jointly by the Lister Institute and the Medical Research Council of England (Vitamins: A Survey of Present Knowledge, 1932). These tables should serve as a guide for comparative vitamin claims for foods in advertising.

ACCEPTED FOODS

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

JELKE GOOD LUCK THOUSAND ISLAND DRESSING

Manufacturer.—John F. Jelke Company, Chicago.

Description.—Salad dressing containing cottonseed (or corn) oil, water, sweet pickle relish, sucrose, distilled vinegar, chili sauce, eggs, corn starch, salt, tapioca flour, mustard and paprika.

Manufacture.—The ingredients in definite proportions are prepared and admixed as described for Jelke Good Luck Salad Dressing (The Journal, May 5, 1934, p. 1472).

Analysis (submitted by manufacturer).—

	per cent
Moisture	37.0
Total ash	5.3
Sodium chloride	4.6
Fat (ether extract)	42.5
Protein (N × 6.25)	1.1
Reducing sugar as invert sugar	5.1
Sucrose (copper reduction method)	4.3
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	12.5
Titratable acidity as acetic acid	1.0
Lipoid phosphoric acid as P_2O_5	0.042
Total phosphoric acid as P_2O_5	0.045

Calories.—4.4 per gram; 125 per ounce.

YEAST-RICH ARTAB

Manufacturer.—Kitchen Art Foods, Inc., Chicago.

Description.—Mixture of cornstarch, dried yeast, sucrose, hydrogenated cottonseed oil, skim milk powder, glycerin, oil of orange, and vanillin; in tablet form.

Manufacture.—The cane sugar, cornstarch, skim milk powder, yeast and vanillin in formula proportions are thoroughly mixed. The hydrogenated cottonseed oil, glycerin and oil of orange are

kneaded in; one-half ounce portions of the dough are compressed into tablet form by means of punches and dies; the tablets are allowed to stand for twenty-four hours, wrapped in cellophane paper and packed in pasteboard boxes.

Analysis (submitted by manufacturer).—

	per cent
Moisture	4.3
Ash	1.9
Fat (ether extract)	20.6
Protein (N × 6.25)	13.4
Reducing sugars as dextrose	9.8
Sucrose (copper reduction method)	12.8
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	59.6

Calories.—4.8 per gram; 136 per ounce.

Vitamins.—By vitamin assay, the yeast ingredient contains at least 45 B units and 35 G units (Sherman) per gram.

Claims of Manufacturer.—One Artab block contains 3.25 Gm. of dried yeast, equivalent in vitamins B and G to three moist yeast cakes, approximately 140 units of vitamin B and 110 units of vitamin G (Sherman).

SUPERB BRAND WHITE SYRUP
GOLDEN RULE BRAND WHITE SYRUP

Distributor.—Tolerton & Warfield Co., Sioux City, Iowa.

Packer.—Penick and Ford Sales Company, Cedar Rapids, Iowa.

Description.—Table syrup; corn syrup base (85 per cent) with rock candy syrup (15 per cent); the same as Penick Syrup Crystal White (THE JOURNAL, April 9, 1932, p. 1268) except that rock candy syrup is used in the packing of this brand instead of cane sugar syrup, as is used for packing Penick Syrup Crystal White.

STOKELY'S FOR BABY SPECIALLY PREPARED STRAINED VEGETABLE SOUP

SEASONED WITH SALT

Manufacturer.—Stokely Brothers & Company, Inc., Indianapolis.

Description.—Blend of sieved carrots, peas, spinach, celery, potatoes, lima beans and tomato juice, with beef broth, rice and barley flours; slightly seasoned with salt; largely retains the natural minerals and vitamins.

Manufacture.—Good quality carrots and potatoes are washed, peeled, finely cut and sieved in a steam atmosphere through a screen with openings of a size to produce the desired fineness and texture. Medium size canned peas and small green canned lima beans are similarly sieved. Fresh spinach, whenever available, is inspected, trimmed, washed, cut and sieved. If fresh spinach of high quality is not available, Stokely's Specially Prepared Strained Spinach is used. Celery stalks are cleaned and ground to medium fineness. The tomato juice is prepared to retain largely its natural vitamin content. The beef broth per pint contains approximately the meat extractives from a pound of lean beef and a portion of bone. The beef broth, vegetables, barley and rice flours, and salt in definite proportions are thoroughly mixed, heated and filled into enamel lined cans, which are sealed and processed.

Analysis (submitted by manufacturer).—

	per cent
Moisture	85.0
Total solids	15.0
Ash	1.4
Sodium chloride	0.8
Fat (ether extract)	0.1
Protein (N × 6.25)	3.0
Reducing sugars as dextrose	1.0
Sucrose (copper reduction method)	0.5
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	10.0
Alkalinity of ash (cc. normal acid per gram ash)	1.8
pH	5.7

Calories.—0.5 per gram; 14 per ounce.

Vitamins.—The natural vitamin content is retained in large measure in the manufacturing process by the use of equipment and procedure which exclude incorporation of air; the vegetable material is exposed to steam only.

Claims of Manufacturer.—Supplementary to the infant milk diet, and valuable for children and adults on soft diets. Has smooth consistency and supplies desirable bulk without roughness. The straining renders the nutrient content readily available for digestion. Scientifically prepared to retain in high degree the natural flavor, mineral and vitamin values. Seasoned to bring out full flavor and packed in enamel lined cans. Requires only warming for serving.

CAREY-IZED SALT IODIZED
PIONEER SALT IODIZED

Manufacturer.—The Carey Salt Company, Winnfield, La.

Description.—Table salt containing 1 per cent carbonate of magnesia and 0.02 per cent potassium iodide.

Manufacture.—Carey's Free Running Salt (THE JOURNAL, Aug. 26, 1933, p. 676) is admixed with 1 per cent magnesium carbonate and 0.02 per cent potassium iodide.

Claims of Manufacturer.—This iodized salt is for all table and cooking uses of salt. The magnesium carbonate tends to preserve its free running qualities. The iodine in the salt aids in preventing goiter caused by insufficient iodine in the diet. Used daily as the only salt on the table and in cooking, it richly supplements the iodine of diets deficient in that element. Does not cake or harden in the package.

FIVE-O CHOCOLATE FLAVORED DRINK BASE
KRIM-KO CHOCOLATE FLAVORED DRINK BASE

Manufacturer.—Krim-Ko Company, Chicago.

Description.—Drink base for preparing special beverages containing sucrose, water, chocolate and cocoa, tapioca flour, salt, agar, tartaric acid; flavored with imitation vanilla.

Manufacture.—The ingredients in definite proportions are heated together. The mixture is homogenized, cooled, packed in five gallon tin cans and distributed only to dairies and licensees for the preparation of special Krim-Ko beverages.

Analysis (submitted by manufacturer).—

	per cent
Moisture	23.0
Ash	1.7
Fat (ether extract)	4.9
Protein (N × 6.25)	1.9
Reducing sugars as invert sugar	39.9
Sucrose (copper reduction method)	18.5
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	68.0
Caffeine and theobromine	0.21

Calories.—3.2 per gram; 91 per ounce.

Claims of Manufacturer.—For preparation of special Krim-Ko beverages in accordance with specific license contracts and conditions of preparation.

SILVER DRIP BRAND CRYSTAL WHITE SYRUP

Distributor.—Union Sales Corporation, Columbus, Ind.

Manufacturer.—Union Starch & Refining Co., Granite City, Ill.

Description.—A table syrup; corn syrup sweetened with sucrose; flavored with vanilla extract.

Manufacture.—Same as Pennant Crystal White Syrup, THE JOURNAL, Jan. 30, 1932, page 403, except that less sucrose is used.

Analysis (submitted by manufacturer).—

	per cent
Moisture	24.5
Ash	0.3
Fat (ether extract)	0.0
Protein (N × 6.25)	0.05
Reducing sugars as dextrose	30.7
Sucrose (invertase method)	7.5
Dextrins (by difference)	36.9
Titratable acidity as HCl	0.01
Sulphur dioxide as SO_2	0.001
pH	4.8

No methods are available for accurately determining the composition of syrups of this nature; therefore the foregoing analysis is roughly approximate.

Calories.—3.0 per gram; 85 per ounce.

Claims of Manufacturer.—For table use and as a carbohydrate supplement for milk modification in infant feeding.

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SATURDAY, JUNE 2, 1934

THE ESTIMATION OF VITAMIN C

The importance of a supply of antiscorbutic substances in the diet was appreciated long before the development of knowledge concerning vitamins. Scurvy was recognized as a true deficiency disease, and the belief was fortified when it became possible to develop the malady experimentally in animals and to avert or cure it by suitable dietary supplements. In the "alphabet of vitamins" the unidentified antiscorbutic factor was designated as vitamin C. On the basis of experimental and empirical clinical observation great progress has been made in the elimination of scurvy through well established principles of preventive medicine. Almost every child is now supplied with antiscorbutic foods. Infantile scurvy has all but disappeared. Recently two incidents have added to the knowledge of vitamin C. Foremost is the discovery of the chemical nature of this organic food accessory. It is clearly recognized as one of the hexuronic acids, designated as ascorbic acid—a compound that can be prepared synthetically in the laboratory. The other contribution is the development of an indirect chemical method for the estimation of ascorbic acid in foods and tissues. This promises to enable investigators to dispense with the time-consuming biologic method of assay that has been in vogue for more than a decade.

For comparison in terms of a convenient unitage, citrus fruit juice has been used of late; in fact, the so-called international unit is based on such a standard. Now it seems destined to be supplanted by ascorbic acid itself as a standard. The product is already commercially available. According to comparative investigations by Harris and Ray [1] of the Nutritional Laboratory in Cambridge, England, 2 mg. of ascorbic acid is equivalent in antiscorbutic potency to 3 cc. of orange juice. This value agrees with the amount of ascorbic acid actually present in average specimens of orange juice or in "good" lemon juice, as determined by titration (from 0.6 to 0.7 mg. per cubic centimeter). According to English assays, lemon juice is subject to some variation in potency, so that the evaluation of ascorbic acid in terms of international units will depend on the quality of the lemon juice used for comparison; but taking the interpretation that the standard lemon juice means a "good" specimen showing from 0.6 to 0.7 mg. of ascorbic acid per cubic centimeter on titration, ascorbic acid has a potency of 15 international units per milligram.

With the new methods of assay it has become possible to estimate the distribution of the indispensable ascorbic acid in the body. It is already known that the substance is quite widespread in various tissues and organs, in which the content is decreased whenever there is a shortage of vitamin C in the dietary intake. According to observations by Harris, Ray and Ward,[2] the amount of vitamin C excreted in the urine is surprisingly constant under ordinary circumstances, amounting to 30 or more mg. a day. The British investigators state that if a normal individual is given a single large dose of vitamin C (for instance, 600 cc. of orange juice, thirty times the reputed daily requirement), the concentration of vitamin C in the urine sharply rises, reaching in about three hours a maximum as high as, e. g., eight or ten times the "normal"; it then rapidly drops again and within a day or so reaches the "normal" resting level of about 33 mg. excreted daily, where it remains remarkably steady although the subject may be restricted for a week or more to a vitamin C-free diet. At present the minimum daily requirement is estimated at 1 ounce (30 cc.) of orange or lemon juice, or about 20 mg. of ascorbic acid. It may become possible, by examination of the urine, to ascertain whether the supply of vitamin C falls below a safe margin, so that a diagnosis of latent avitaminosis can be made before other symptoms are apparent.

1. Harris, L. J., and Ray, Surendra N.: Standardization of the Antiscorbutic Potency of Ascorbic Acid, Biochem. J. 27:2016 (No. 6) 1933.

2. Harris, L. J.; Ray, Surendra N., and Ward, Alfred: The Excretion of Vitamin C in Human Urine and Its Dependence on the Dietary Intake, Biochem. J. 27:2011 (No. 6) 1933.

LEAD AND MULTIPLE SCLEROSIS

Perhaps the most striking manifestations of lead poisoning are those associated with an impaired nervous mechanism. Lead intoxication may be followed by a variety of neurologic symptoms, such as tremor, transient paralysis, convulsions, vertigo, temporary blindness, headache, insomnia, and mental lethargy or other disturbances. A recent report by Cone, Russel and Harwood [1] further incriminates this element as a neurotoxic substance by the suggestion that it may be an etiologic agent in multiple sclerosis of the exacerbating and remitting type. This conclusion was based on the finding of appreciable quantities of lead in the cerebrospinal fluid, brain, spinal cord and bones of a number of patients with this disease. In only a few instances did the case histories indicate the possibility of a previous exposure to undue amounts of lead; therefore there had undoubtedly occurred a slow chronic absorp-

1. Cone, William; Russel, Colin, and Harwood, R. U.: Lead as a Possible Cause of Multiple Sclerosis, Arch. Neurol & Psychiat. 31:236 (Feb.) 1934.

tion of amounts too small to produce toxic symptoms. In several instances the appearance of the acute symptoms was preceded by some metabolic change caused by severe infections or by pregnancy and lactation. This was explained by the assumption that the lead which had been absorbed in earlier life had been stored; the subsequent metabolic changes caused its release in toxic amounts. That the foregoing explanation may be tenable is evident from a survey of reports in the literature describing the ubiquity of the distribution of lead, the ease with which it is absorbed, and the behavior of this element in the animal organism.

According to recent analyses,[2] many common foods, particularly fruits and vegetables which have been sprayed with insecticides containing lead, may contain small amounts of lead. Cognizance of this fact has resulted in the placing of a limit of 2 parts per million as the permissible maximum lead content of foods.[3] Drinking water, cooking utensils, fumes, soot, dust particles and paint also may serve to introduce small quantities of lead into the body. Obviously, individuals engaged in occupations such as mining, plumbing and painting, which necessitate the constant handling or manipulation of material containing lead, may absorb additional amounts of this element. Thus it is evident that exposure to lead in varying quantities is inevitable under average modern living conditions. Lead may be absorbed readily from the respiratory and gastrointestinal tracts, and possibly also from the skin.[4] After absorption it is apparently converted into a colloidal lead phosphate, transported as such in the general circulation to all parts of the body, and ultimately excreted or stored. Excretion may occur directly into the intestine or by way of the bile, the urine or possibly the skin. The amount of lead appearing in the excreta varies directly with the degree of exposure.[2] Mexicans living under "primitive" conditions and presumably subject to a minimal exposure excrete approximately 0.11 mg. of lead daily in the feces and 0.014 mg. per liter of urine; whereas Americans, on the average, excrete approximately twice this amount. Individuals exposed to undue amounts of lead because of occupation may show an excretion from ten to twenty times greater than the average. The fact that appreciable quantities of lead appear in the urine of "normal" man shows conclusively that this element is absorbed into the blood stream and may come in contact with all body tissues. The available evidence indicates that lead may be retained temporarily by many tissues and that it may be deposited for prolonged periods in the bones. Ordinarily, lead stored in the bones remains inert but, as a result of certain stimuli, may be mobilized and appear in the circulation in a soluble form. The analogy between lead and calcium in this respect is striking. Apparently the factors controlling the mobilization of calcium also influence that of lead. Indeed, it has been demonstrated recently[5] that the production of an experimental acidosis in neurologic patients by the administration of ammonium chloride induces a decided increase in the amount of lead excreted in the urine and, in some instances, causes the appearance of detectable amounts in the cerebrospinal fluid. This can be most logically explained by assuming that a mobilization of stored lead has occurred. Thus there are indications that a slow, insidious accumulation of lead in the human organism may occur much more frequently than has been suspected and that the stored lead may serve as a potential etiologic agent in multiple sclerosis.

2. Kehoe, R. A.; Thamann, Frederick, and Cholak, Jacob: On the Absorption and Excretion of Lead (a series of six articles), J. Indust. Hyg. 15: 257 (Sept.) 1933.
3. Committee on Foods: Tolerance for Arsenic, Copper and Lead in Foods, J. A. M. A. 101: 1483 (Nov. 4) 1933.
4. Aub, J. C.; Fairhall, L. T.; Minot, A. S., and Reznikoff, Paul: Lead Poisoning, Medicine 4: 1 (Feb.-May) 1925.
5. Rabinowitch, I. M.; Dingwall, Andrew, and Mackay, F. H.: Studies on Cerebrospinal Fluid: II. The Occurrence of Lead in Cerebrospinal Fluid, J. Biol. Chem. 102: 707 (Dec.) 1933.

THE INTERPRETATION OF ERYTHROCYTE COUNTS

A recently published series of observations on the blood of healthy persons by Walters [1] at the University of Kansas offers some features for careful consideration by the physician who deals with blood examinations. The erythrocyte count, quantity of hemoglobin and volume of packed cells in eighty healthy men between the ages of 20 and 30 and determined after a half hour period of inactivity in the recumbent position were compared with those of eighty other subjects sampled after random uncontrolled activity. Resting subjects showed a significantly lower red cell count, hemoglobin and packed cell volume. Similar observations were made on twenty men, first after random activity and then one hour later after complete muscular inactivity in the recumbent position. Red cell count, total hemoglobin and total volume of packed cells showed a significant decrease following inactivity, while corpuscular volume, corpuscular hemoglobin and corpuscular hemoglobin concentration did not undergo any significant change.

It is not unusual for clinicians to make their diagnostic blood examinations while the patients are at complete rest. The possible influence of the enforced inactivity needs to be taken into account in the interpretation of the erythrocyte and hemoglobin observations. This is probably true also in relation to older persons of extremely sedentary habits, who are notably likely to exhibit low "blood counts" and thus present apparent aspects of mild anemia. There is nothing fundamentally new in the evidence that muscular activity, even for short periods of time, results in notable increases in circulating erythrocytes. The mechanism involved is fairly well understood. The spleen acts as a storage depot capable of increasing the oxygen-carrying capacity of the blood by the extrusion of considerable quantities of erythrocytes.

1. Walters, O. S.: The Erythrocyte Count, Quantity of Hemoglobin and Volume of Packed Cells in Normal Human Subjects During Muscular Inactivity, Am. J. Physiol. 109: 118 (April) 1934.

The lower figures after inactivity indicate an absolute decrease in circulating erythrocytes, owing to withdrawal of cells into storage. It has been alleged that the normal organism has a tendency to maintain the lowest degree of circulatory activity consistent with its requirements at any given time and will accordingly withdraw blood into storage areas whenever possible. Walters avers that the decreased red cell content in resting persons probably represents the converse of the erythrocytosis that occurs in exercise or emotion, both types of adjustment reflecting a delicate balance, which at all times appears to adapt the oxygen-carrying capacity of the circulating blood to the requirements of the tissues.

Current Comment

PHARMACOPEIAL VITAMIN STANDARDIZATION

Elsewhere in this issue (Miscellany, page 1877) appears a comprehensive statement on standardization of vitamins issued by the Committee of Revision of the U. S. Pharmacopeia. The committee intends to issue interim revisions. The first of these has just been promulgated and deals with the methods and potencies of vitamin assay for cod liver oil. The new standards become official Jan. 1, 1935. It may be recalled that in the present Pharmacopeia there are two types of cod liver oil described: one that requires no assay and another that requires an assay of the vitamin A but not the vitamin D content. Even in the latter the vitamin A limits are low. For this reason the Council on Pharmacy and Chemistry has found it necessary to examine meticulously the protocols of assay of various accepted brands of cod liver oil. In each succeeding issue of New and Nonofficial Remedies it may be noted that the vitamin potencies of this or that accepted product have been increased as better methods of manufacturing technic have been developed. Also, supplies of cod liver oil have been found in which the vitamin activity is many times greater than that which was thought possible several years ago for an unfortified cod liver oil. In conformity with the progress for international standards, the new standards for the Pharmacopeia employ international units. These units are based on comparisons of the vitamin A and vitamin D activity of the oil to be assayed with a known reference oil. Using this method, the Committee of Revision has issued an order that all cod liver oil, labeled as such, which is sold in the United States shall have as minimum standards for vitamin A not less than 600 international units and for vitamin D not less than 85 international units per gram. This is approximately equal to 430 A. D. M. A. units or U. S. P. X units of vitamin A per gram or 32 Steenbock units of vitamin D per gram. It will thus be seen that cod liver oil in order to pass these minimum potencies must be of high grade. Some of the brands that have flooded the cheaper drug market must be considerably improved or they will cease to be marketed legally. Until the new U. S. P. standards are thoroughly established, however, those who wish to avoid products of doubtful potency should confine their prescriptions to the brands that have been found acceptable by the Council on Pharmacy and Chemistry. Anticipating the action of the revision committee, the Council on Pharmacy and Chemistry at the last meeting issued a comprehensive statement on cod liver oil preparations which was published in the minutes. The Council requires that cod liver oils accepted for N. N. R. must have a vitamin potency of at least 850 vitamin A units per gram and 85 vitamin D units per gram when tested according to the revised method. It would serve physicians well to read the Council action in the light of the recent promulgation of cod liver oil standards.[1] The new U. S. P. standards do not cover products that have been fortified by the addition of viosterol or have been modified in such a way as to be sold as concentrates either in liquid or in tablet form. The average dose of cod liver oil as defined by the result of a cod liver oil questionnaire sent to pediatricians by the Council is three teaspoonfuls daily. The Council held at that time that the dosage contemplated the use of an oil having the potency of at least 400 U. S. P. units of vitamin A per gram, and at least 13.3 units (Steenbock) of vitamin D per gram. The pharmacopeial revision still recommends a dose of three teaspoonfuls daily for an infant. Calculated strictly under the new standards, one teaspoonful of cod liver oil gives approximately 310 vitamin D units and 2,200 vitamin A units (revised 1934 units), an increase in dose of vitamin A of approximately 40 per cent and vitamin D of approximately 240 per cent as compared with the hitherto accepted dosage. Physicians would do well to bear this in mind. The Committee on Revision and the Special Committee on Vitamin Standards are to be commended for their untiring efforts to place U. S. P. cod liver oil on a sounder basis.

THERAPEUTICS

With this issue THE JOURNAL begins a series of articles on therapeutics representing the methods of treatment used in the Cook County Hospital, Chicago, one of the largest medical institutions in the world. The responsibility for furnishing guidance to interns in large hospitals rests on the attending staff. Innumerable problems arise in the treatment of disease which demand the most careful consideration. It would no doubt be better if standing orders for routine methods could be eliminated entirely and every case considered wholly on its merits. However, in large institutions such orders are necessary because of the desirability of prompt action toward the relief of patients. The outlines of treatment that are included in the new series of articles on therapeutics represent the conclusions of conferences in which members of the staff representing various specialties have joined to give of their best thought and experience. An attempt has been made to limit the number of alternative procedures as much as possible. These outlines of treatment are not intended to be adopted in toto by other institutions but are merely suggestions based on successful results. Because

1. The minutes of the Council meeting appeared in THE JOURNAL April 21, 1934, p. 1298. Reprints of this report will be sent to physicians on request.

of the number of men who contributed to the development of these outlines of therapy, it has been impossible to assign individual credit. It is understood that the outlines have been edited by the director of therapeutics in the hospital and that the entire staff bears a share of the responsibility for most of the procedures included.

Association News

THE CLEVELAND SESSION

Luncheon of the Phi Chi Fraternity

The Phi Chi Fraternity will hold a luncheon Thursday, June 14, at the Statler Hotel. The assembly will be addressed by Eben J. Carey, professor of anatomy and dean of the Marquette University Medical School, Milwaukee.

Banquet of Section on Gastro-Enterology and Proctology

The annual banquet of the Section on Gastro-Enterology and Proctology will be held at the Hotel Cleveland at 6:30 p. m., Wednesday, June 13.

Beware of Speed Traps

A physician who has evidently had some unpleasant experiences desires that those who drive their own cars to the Cleveland session be warned to keep under speed limits in all suburban areas around the city of Cleveland. Officers patrolling suburban roads do not ride on motorcycles but drive Ford cars and are said to be vigilant in arresting those who drive at a speed in excess of the ordinary limits.

MEDICAL BROADCASTS

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 3:45 to 4 o'clock, Central daylight saving time (3:45 Eastern standard time, 2:45 Central standard time, 1:45 Mountain standard time, and 12:45 Pacific standard time). The talk on June 11 from Cleveland will be broadcast at 6 o'clock, Eastern daylight saving time. The next two broadcasts will be as follows:

June 4. Highway Hazards, W. W. Bauer, M.D.
June 11. The Common Cold, Wilson G. Smillie, M.D. (from Cleveland).

The National Broadcasting Company talks will be discontinued for the summer with the talk from Cleveland on June 11.

Columbia Broadcasting System

The Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central daylight saving time. The June 14 broadcast will be from Cleveland from 4 to 4:15 p. m., Eastern daylight saving time. The next three broadcasts will be as follows:

June 7. The First Month, W. W. Bauer, M.D.
June 14. Medicine Marching Forward, Morris Fishbein, M.D. (from Cleveland).
June 21. Mischievous Misconceptions, W. W. Bauer, M.D.

Chinese Medicine.—The story of medicine in China began in the hoary past. Her medical art certainly was well developed as early as 206 B. C. The founders were emperors and statesmen. The record is carried on from the standpoint of philosophers, with keen, logical reasoning, in which real intelligence and culture, much labor and some truth are shown. Her ecclesiastics have definitely added a peculiar quota to the narrative; her pseudoscientists, in alchemy and astrology, have been most influential in contributing material; her magicians, exorcists, geomancers, necromancers, etc., have made the story turbid and unnatural; humbugs, coolies, quacks, scoundrels and deceivers have added a sinister note to the record.—Morse, W. R.: Chinese Medicine, New York, Paul B. Hoeber, Inc., 1934.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

State Medical Election.—Dr. Robert A. Peers, Colfax, was chosen president-elect of the California Medical Association at its annual meeting, May 2, and Dr. Clarence G. Toland, Los Angeles, was installed as president. Dr. Emma W. Pope, San Francisco, was reelected secretary. The next annual meeting of the association will be held at Yosemite.

University News.—The University of California, cooperating with the Metropolitan Life Insurance Company, began a practical training course for health officers, May 14, to continue twelve weeks. Participants in the course have access to well organized urban and rural health departments, where practical field observation and training are available and biometric and bacteriologic laboratory facilities are at hand.

Society News.—The Hollywood Academy of Medicine was addressed by Dr. Sterling Bunnell, San Francisco, May 17, on "Reconstruction of the Hands."——Papers were presented before the Los Angeles Surgical Society, May 11, among others, by Drs. Charles E. Phillips on "Myoma of the Stomach," and Rudolph Marx, "Effect of Hysterectomy on Endocrine Balance."——Dr. John D. Camp, Rochester, Minn., addressed the San Francisco County Medical Society, May 8, on "Roentgenologic Findings in Hyperparathyroidism."——At a joint meeting of the Solano County Medical Society and the Napa-Solano County Dental Association, May 8, in Vallejo, Dr. Anthony B. Diepenbrock and Bertram F. Coleman, D.D.S., San Francisco, discussed focal infection.

COLORADO

Society News.—The Medical Society of the City and County of Denver was addressed, May 15, by Drs. Henry W. Averill, Evans, on "The Common Cold"; Charles A. Ringle, Greeley, "Otitis Media," and Charles B. Dyde, Greeley, "Quixotic Medicine." Dr. William F. Spaulding, Greeley, presented a case report on hemolytic icteric anemia. The program was presented by the Weld County Medical Society.

Medicolegal Banquet.—The physicians and lawyers of Denver held their annual banquet at the Denver Country Club, April 17, under the auspices of the Denver Bar Association. Dr. Walter W. King was toastmaster for the physicians and George C. Manly, dean emeritus, law school of the University of Denver, for the lawyers. Benjamin C. Hilliard Jr. spoke on "The Doctor in the Courtroom," and Dr. Arthur W. Stahl, "The Lawyer in the Hospital." Other speakers included Dr. John W. Amesse, Dr. James R. Arneill, William Hutton and Edward King.

CONNECTICUT

Personal.—Dr. Felix F. Tomaino has been appointed health officer of Danbury to succeed the late Dr. John J. Mayerick.——Dr. Theodore H. Sills has been appointed health officer of Newington.

Society News.—Dr. Howard Fox, New York, addressed the Bridgeport Medical Society, April 3, on common skin diseases.——Dr. Graeme M. Hammond, New York, addressed the Stamford Medical Society, April 17, on "Suggestions in the Treatment of Epilepsy," and Dr. William P. Healy, New York, "Precancerous Lesions of the Vulva and Cervix."

GEORGIA

Society News.—Speakers before the Fulton County Medical Society, May 3, included Drs. Rudolph A. Bartholomew and Emmett D. Colvin on "Advantages of Paraldehyde as a Basic Amnesic Agent in Obstetrics." Dr. Kenneth R. Bell, Atlanta, presented a paper on "Cholecystography: Advantages of Intravenous Administration of the Dye" before the society, May 17.

ILLINOIS

State Medical Election.—Dr. Charles S. Skaggs, East St. Louis, was installed as president of the Illinois State Medical Society at its annual meeting in Springfield, May 17. Dr. Charles B. Reed, Chicago, was chosen president-elect. Dr. Harold M. Camp, Monmouth, was reelected secretary.

Rockford has been designated as the place of the next annual meeting, and the date tentatively set for May 21-23.

Society News.—Speakers before the Adams County Medical Society in Quincy, May 14, were Dr. Frank J. Jirka on health department activities; H. J. Shaughnessy, Ph.D., the doctor and the diagnostic laboratory, and Dr. Robert H. Woodruff, mortality trends and vital statistics.——The Winnebago County Medical Society conducted its fourth annual clinical program at St. Anthony's Hospital, Rockford, May 2, with the following participants, among others: Drs. David S. Hillis, Chicago, "Problems of Pregnancy"; Theodor Lang, Rockford, pathologic demonstration; Robert A. Black, pediatrics; Max S. Wien, Chicago, clinic on dermatology; Henry W. Meyerding, Rochester, Minn., orthopedic demonstration, and Aaron Arkin, Chicago, illustrated demonstration of lesions of gastro-intestinal tract.

Chicago

Society News.—Speakers before the Chicago Society of Internal Medicine, May 28, included Drs. William C. Buchbinder on "Relief of Thyrotoxicosis by Thyroidectomy"; Willis Stanley Gibson and Edward J. Denenholz, "Rheumatic Heart Disease in Children"; Louis Leiter, "Hypertension and Nephritis"; Richard H. Jaffe, "The Neutropenic State," and James A. Connor, "Amebiasis."——At the annual meeting of the Chicago Tuberculosis Society, May 10, Dr. Ellis B. Freilich was elected president; Dr. Ralph B. Bettman, vice president, and Dr. Richard M. Davison, secretary.——The Cook County Physicians Association was addressed, May 25, by Drs. Samuel J. Fogelson and Hugo O. Deuss on medical economics.

INDIANA

Society News.—Dr. Ralph W. Elston, Fort Wayne, spoke before the Whitley County Medical Society in Columbia, May 8, on treatment of fractures.——At a meeting of the Knox County Medical Society in Vincennes, May 8, Dr. Clark E. Stewart, Vincennes, discussed "Insulin in Malnutrition."——The Jefferson County Medical Society was addressed, April 24, in Madison, by Dr. Lester A. Smith, Indianapolis, on "X-Ray Diagnosis of Childhood Tuberculosis."——The Elkhart County Medical Association heard Dr. Matthew Winters, Indianapolis, discuss "Summer Diarrhea and Gastro-Intestinal Upsets" at its meeting in Goshen, May 10.——Dr. Frank M. Gastineau, Indianapolis, addressed the Carroll County Medical Society in Camden, May 11, on "Common Skin Diseases in Adult Life."——At a meeting of the Randolph County Medical Society in Winchester, May 14, Dr. Alois B. Graham, Indianapolis, spoke on "Office Treatment of Anorectal Diseases."——The Gibson County Medical Society was addressed in Princeton, May 14, by Dr. Robert H. Crawford, Indianapolis, on "Pernicious Anemia and Its Treatment."——Dr. William R. Cubbins, Chicago, discussed "Injuries Around the Knee Joint" before the La Porte County Medical Society in La Porte, May 17.——At the one hundred and thirty-second semiannual meeting of the Union District Medical Association in Oxford, April 26, the speakers included Dr. Goethe Link, Indianapolis, on "Mild Chronic Thyroid Disease"; Dr. Elmore B. Tauber, Cincinnati, "Commoner Skin Diseases"; Dr. Vierl C. Griffis, Richmond, "Treatment of Harelip and Cleft Palate," and Albert Stump, attorney for the state medical association.——Drs. Karl R. Ruddell and Norman S. Loomis, among others, addressed the Indianapolis Medical Society, May 15, on "Tuberculosis of Abdominal Viscera."

IOWA

Society News.—Dr. Erwin von Graff, Iowa City, spoke on ectopic pregnancy before the Washington County Medical Society in Washington, April 3.——Members of the Pottawattamie County Medical Society, all of Council Bluffs, presented the program before the Woodbury County Medical Society in Sioux City, April 19; speakers were Drs. Arnold L. Jensen on the traumatic abdomen; Gerald V. Caughlan, transurethral prostatic resection, and Raymond M. Rice, the education of the diabetic patient.

Alumni Reunion.—Announcement is made of a reunion, June 18, of the graduates of medicine, dentistry, pharmacy and nursing of the old college of Physicians and Surgeons of Keokuk Medical College and the combined institutions, which was in 1908 consolidated with Drake University and later with the University of Iowa. This will be the fourth reunion to be held in Keokuk, the first being in 1927, the second in 1928 and the third in 1930, which was attended by 20 per cent of the living graduates. Dr. William Rankin is chairman of the committee.

KANSAS

Changes in Health Officers.—Dr. Tarlton A. Hood, Garnett, has been named health officer of Anderson County, succeeding Dr. John N. Carter Jr.; Dr. Darrel L. Evans, Manhattan, has been appointed health officer of Riley County, to succeed Dr. John R. Mathews, resigned. Dr. Mathews will engage in private practice in Glenwood Springs, Colo. Dr. Fred E. Harvey is now health officer of Ottawa County, succeeding the late Dr. Joseph F. Brewer.

MAINE

Obstetric Meeting.—The spring session of the New England Obstetrical and Gynecological Society convened in Portland, May 16, under the presidency of Dr. Alonzo K. Paine, Boston. In addition to operative clinics, Dr. Harold J. Everett conducted a prenatal clinic, and Dr. Theodore C. Bramhall one on trichomonas vaginalis. The following physicians presented papers:

Thomas A. Foster and Carl M. Robinson, Congenital Pyloric Stenosis.
Walter F. W. Hay, Extra-Uterine Pregnancy.
Clinton N. Peters and Langdon T. Thaxter, Pyelonephritis in Pregnancy.
William Holt, Results of Radium Therapy in 170 Cases of Uterine Carcinoma.

Sir Duncan Campbell, journalist and traveler, Glasgow, Scotland, addressed the dinner meeting in the evening.

MARYLAND

Review Course for Physicians.—The division of medical extension of the University of Maryland will conduct a combined review course for physicians, June 4-22. Morning lectures will deal with advances in diagnosis and treatment in subjects chiefly from the field of general medicine and surgery, with a few lectures devoted to the specialties. The afternoons will be given over to the laboratory methods. The class will be divided into groups for ward rounds, and a clinic will be held daily. A matriculation fee of $25 will be charged all registrants of Maryland, while the charge to persons coming from other states will be $50. The course will be limited to twenty men. Further information may be had from the dean of the medical school, University of Maryland, Baltimore.

Personal.—Dr. Joseph LeRoy Wright, Jessups, for the last three years physician in charge of the Maryland House of Correction, has been named warden to succeed the late Joseph A. Delaney. Dr. Henry S. Shelley, Baltimore, has been appointed to succeed Dr. Wright.——Dr. Humphrey Warren Buckler, until recently acting assistant health commissioner of Baltimore, has been appointed full time medical health officer for the city health department. Dr. William K. Skilling has been named director of the bureau of child welfare.——Dr. Kenneth B. Jones, superintendent of the District Training School (federal), Laurel, and a former superintendent of the University Hospital, has been named to succeed the late Dr. Frank W. Keating as head of the Rosewood State Training School, Owings Mills. Dr. Keating has been superintendent of the institution for thirty-seven years.——Dr. Johannes Frandsen, director of the National Health Service of Denmark, recently spent several days in Baltimore, accompanied by Dr. Poul R. T. G. Guildal, orthopedic surgeon with the health service. Dr. Frandsen is touring the United States as guest of the Rockefeller Foundation.

MASSACHUSETTS

State Medical Meeting.—The one hundred and fifty-third annual meeting of the Massachusetts Medical Society will be held in Worcester, June 4-6, in the Hotel Bancroft and Chamber of Commerce Building, under the presidency of Dr. William H. Robey. The Shattuck Lecture will be given, Monday evening, by Dr. Warfield T. Longcope, professor of medicine, Johns Hopkins University School of Medicine, Baltimore, on "The Importance of Disturbances in Nutrition in Edematous States." Dr. Lincoln Davis, Boston, president of the Boston Medical Library, will deliver the annual discourse, Wednesday afternoon, on "The Objectives of Medical Progress." Out-of-state speakers on the program include the following physicians:

Harold D. Corbusier, Plainfield, N. J., Conduct of the Convalescent Stage of Anterior Poliomyelitis.
Ross Golden, New York, Diverticulosis, Diverticulitis and Carcinoma of the Colon: A Roentgenologic Discussion.
Hermon C. Bumpus Jr., New York, Transurethral Resection of the Prostate.
Clay Ray Murray, New York, Management of Fractures About the Ankle Joint.
Homer F. Swift, New York, Chronicity of Rheumatic Fever.
P. Brooke Bland, Philadelphia, Intracranial Hemorrhage in the New-Born from the Standpoint of the General Practitioner.

A symposium on measurement of activity in pulmonary tuberculosis will be held, Wednesday morning, by Drs. Harry S. Wagner, Pocasset; Frank H. Hunt, Mattapan; Olin S. Pettingill, Middleton; Theodore L. Badger, Boston; Jacob Kaminsky, Waltham; Gulli L. Muller, Boston; John W. Cass Jr., Boston, and William H. Ordway, Mount McGregor, N. Y. Other physicians included on the program will be:

Warren E. Wheeler, Boston, The Use of the Ketogenic Diet in Pyuria.
Clement A. Smith, Boston, Present Status of Vaccination Against Tuberculosis.
Sidney Farber, Boston, Rôle of the Streptococcus in So-Called Sudden Death in Infancy and Childhood.
Abraham Myerson, Boston, Social Conditioning of the Visceral Activities.
Henry D. Chadwick, state health commissioner, Boston, Tuberculosis As It Affects the Physician's Practice.

MICHIGAN

Hygiene and Public Health.—The University of Michigan announces courses in hygiene and public health to be conducted, June 25-August 3, under the direction of Dr. John Sundwall, director of the division of hygiene and public health. The courses have been designed for health officers, public health nurses, sanitary inspectors, public health laboratorians, medico-social workers, psychiatric social workers, social workers and teachers and supervisors of school health education.

Social Service Survey.—Dr. Haven Emerson and Dr. Gertrude Sturges, New York, are conducting a social service survey in Detroit, under the auspices of the Council of Social Agencies and the American Public Health Association. In addition, the Wayne County Medical Society is sponsoring a similar study. Combined questionnaires for the two surveys have been issued to every member of the society, containing fifteen questions on outpatient departments and social service work. A second questionnaire was sent to the chiefs of every hospital staff, with a copy to the superintendent, regarding outpatient service with special reference to the type and amount of dispensary service available in the community. The results of the questionnaires of the county society will be tabulated and submitted to the Council of Social Agencies to aid it in this study.

MINNESOTA

Basic Science Law Violated.—Stanley C. Flanning recently pleaded guilty to practicing healing without a basic science certificate at Rochester and received a suspended sentence of five months in the Olmsted County Jail, according to the state board of medical examiners. He was placed on probation on condition that he refrain from practicing in the future. Formerly in the real estate business and with no medical training, Flanning had been treating at least two patients for diabetes in his room at a Rochester hotel, the treatment consisting of injections of insulin with a hypodermic needle. He stated to the court that he had treated only these two patients and that he had been in the "business" less than three weeks.

Hospital Meeting.—The eleventh annual conference of the Minnesota Hospital Association was held at the Kahler Hotel, Rochester, May 24-25. In addition to the papers dealing with nursing, group purchasing and payment of hospital care, the following speakers, among others, participated:

Dr. William A. O'Brien, Minneapolis, Necessity of Greater Cooperation Between the Medical Profession, Hospitals and Other Allied Professions.
Dr. Russell M. Wilder, Rochester, Use of Special Purpose Foods in the Hospital.
Dr. Walter C. Alvarez, Rochester, Foods 500 People Could Not Eat.
Richard E. Scammon, D.Sc., Minneapolis, Hospital Libraries.
Dr. Halbert L. Dunn, Minneapolis, The Minnesota Hospital Statistical Bureau.

MISSISSIPPI

Society News.—Dr. William P. Robert, Vicksburg, addressed the Central Medical Society, April 3, on infantile eczema, and Dr. DeWitt T. Brock, Jackson, acute conditions in the abdomen.——Dr. Charles M. Hammond, Walls, discussed the aid of the respirator in diseases of the chest before the DeSoto County Medical Society, April 2.——Dr. Ray M. Balyeat, Oklahoma City, addressed a joint meeting of the Clarksdale and Six Counties Medical Society and the Delta Medical Society in Cleveland, April 11, among others, on diagnosis and treatment of allergic diseases.——The Harrison-Stone-Hancock Counties Medical Society was addressed in Biloxi, April 4, among others, by Dr. Edwin B. VanNess, Gulfport, on roentgen therapy.——A symposium on appendicitis constituted the program of the Issaquena-Sharkey-Warren Counties Medical Society in Vicksburg, April 10.

MISSOURI

Illegal Practitioner Fined.—William J. Voss was sentenced to one year in the work house and to pay a fine of $100, April 3, for practicing medicine without a license. The maximum penalty for this offense was imposed by Judge Butler in the court of criminal correction in St. Louis. Voss is alleged to have treated numerous persons for "eye trouble." Although he was formerly listed in the telephone directory with the classification "Dr." and was known as "Dr. Voss" at the address where he was arrested, Voss admitted that he was not a physician. He was paroled from the Colorado State Penitentiary in 1918, after having served a sentence on a charge of issuing a bogus check. A warrant was issued against him the day of his trial in St. Louis, charging him with a similar offense.

NEBRASKA

Society News.—Dr. Waltman Walters, Rochester, Minn., addressed the Otoe County Medical Society, Nebraska City, May 14, on "Lesions of the Stomach and Duodenum and Their Surgical Treatment."——Drs. George W. Covey and J. Marshall Neely, Lincoln, addressed the Omaha-Douglas County Medical Society, May 29, on "Erythroblastosis with Erythroblastic Tumors in the Thorax" and "Abdominal Hodgkin's Disease," respectively.

NEW HAMPSHIRE

State Medical Election.—Dr. Frederic P. Lord, Hanover, was chosen president of the New Hampshire Medical Society at its annual meeting in Manchester, May 16. Dr. Clifton S. Abbott, Laconia, was named vice president and Dr. Carleton R. Metcalf, Concord, reelected secretary. The next annual session will be held in Manchester, May 14-15, 1935.

NEW YORK

Public Meeting on Cancer.—The New York City Cancer Committee sponsored a public meeting on cancer at the Hall of the Bar Association, April 26. Mr. Charles C. Burlingham, president of the Welfare Council, presided and the following speakers participated: Drs. John L. Rice, Alfred E. Shipley, John C. A. Gerster, James Ewing and Francis Carter Wood; Mr. William Hodson, commissioner of public welfare, and Clarence C. Little, Sc.D., director, American Society for Control of Cancer.

Personal.—Dr. Lawrason Brown, Saranac Lake, was recently appointed a member of the state board of social welfare.——Dr. Rosella C. Wilder, Buffalo, has completed fifty years in the practice of medicine, having graduated from the University of Michigan Medical School in 1884.——Dr. Wallace J. French, Pike, was the guest of honor at a luncheon given by the Wyoming County Medical Society, April 10, at Perry, in celebration of his fiftieth anniversary in the practice of medicine. A radio was presented to him.

New York City

Eighth Harvey Lecture.—The eighth lecture of the Harvey Society was delivered by Detlev W. Bronk, Ph.D., Johnson professor of biophysics, University of Pennsylvania, Philadelphia, at the New York Academy of Medicine, May 17, on "The Nervous Mechanism of Circulatory Control."

County Society Library.—Greater use of the library of the Medical Society of the County of Kings during 1933 was recorded in the annual report of the librarian. During the year 13,079 readers consulted 55,333 books in the library and 10,147 books were taken out for home use, all these figures being increases over the corresponding figures for 1932. This library receives 1,518 serial publications and has on its shelves 131,858 volumes.

Bridge to Displaced Hospital.—A new bridge in process of construction has forced evacuation of eight buildings of the New York City Children's Hospital on Randall's Island because the land on which they stand is needed for the bridge right of way, the New York *Times* reported recently. Eventually all buildings will be removed from the island for the development of a city park, but some will be left for the present, it was said. Dr. Sigismund S. Goldwater, hospital commissioner, reported that he hoped to transfer some of the 400 children to state institutions.

Seventh Graduate Fortnight.—The seventh annual Graduate Fortnight of the New York Academy of Medicine will be held October 22-November 2 and will be devoted to consideration of gastro-intestinal diseases. Sixteen hospitals will present coordinated afternoon clinics and clinical demonstra-

tions. At evening meetings, clinicians from various parts of the country will discuss various aspects of the subject. A comprehensive exhibit of anatomic, bacteriologic and pathologic specimens and research material will be shown. A complete program and registration blank may be obtained by addressing Dr. Frederick P. Reynolds, New York Academy of Medicine, 2 East One Hundred and Third Street, New York.

University News.—A student recreation center has recently been completed at Long Island College of Medicine, with a $25,000 gift to the college from the Misses Jennie A. and Cornelia Donnellon. The donors' former residence, which adjoins the college, was bought and utilized for this purpose, according to their wishes.——Dr. Julius M. Rogoff, associate professor of experimental medicine, Western Reserve University School of Medicine, Cleveland, delivered the third of a series of lectures sponsored by the department of biology of New York University at the New York Academy of Medicine, April 11, on "Studies on the Suprarenal Cortex." The fourth lecture was delivered by Dr. Friedrich Gudernatsch, visiting professor of biology at the university, on "Thyroid Actions as Exerted by Thyreogenic and Thyreotropic Substances."——Dr. Max Thorek, Chicago, made an address at Columbia University College of Physicians and Surgeons, April 7, on "A New Method of Obliterating the Gallbladder by Electrosurgical Means."——Dr. Walter T. Dannreuther, among others, gave an address at the alumni day observance of the Association of the Alumni of Long Island College of Medicine, April 28, on "Postgraduate Education in Obstetrics and Gynecology."

NORTH CAROLINA

Society News.—Dr. Alfred R. Shands Jr., Durham, addressed the Rutherford County Medical Society, Forest City, April 20, on "Bone Formation and Management of Fractures."——Dr. George E. Brown, Rochester, Minn., addressed the Buncombe County Medical Society, Asheville, in March, on essential hypertension.——Dr. Robert W. McKay, Charlotte, discussed pyelitis before the Guilford County Medical Society, High Point, April 5.—Dr. Rufus P. Sykes, Asheboro, addressed the Randolph County Medical Society, Asheboro, in March, on jaundice.——A symposium on fractures was presented before the Catawba Valley Medical Society in Morganton, May 8, by Drs. Edward W. Phifer, Morganton; Abner M. Cornwell, and John R. Gamble, both of Lincolnton.

OREGON

Society News.—Speakers at a meeting of the Central Willamette Medical Society, Eugene, April 5, were Drs. Ralph A. Fenton, Portland, on "Research on Sinus Disease"; Charles T. Sweeney, Medford, "Carcinoma of the Large Intestine and Its Treatment," and Irvin R. Fox, Eugene, a case of Malta fever treated by vaccine.

Anniversary Celebration.—The Multnomah County Medical Society observed the fiftieth anniversary of its founding with a banquet at the Portland Hotel, Portland, May 16. The society was established June 10, 1884. Olof Larsell, Ph.D., opened the program with a history of the society. Other speakers and the titles of their papers were Drs. Andrew C. Smith, "Fifty Years of Medical Progress"; Banner R. Brooke and committee, "The Old Timers," and Ralph A. Fenton, "Medical Preparedness in Oregon." Dr. Alfred Kinney, the first and fiftieth president of the Oregon State Medical Society was also present, and Dr. Adalbert G. Bettman acted as toastmaster. Of the twenty-four charter members of the Multnomah society, only three survive, Drs. Simeon E. Josephi, Cortez H. Wheeler, Portland, and Arthur Dean Bevan, Chicago. Dr. Josephi, who was the first president of the society, and Dr. Wheeler, secretary from 1889 to 1891, were recently elected honorary president and secretary, respectively. Both physicians took part in the program.

PENNSYLVANIA

Hospital News.—Because of a decrease in the number of patients with tuberculosis, the Free Hospital for Consumptives and White Haven Sanatorium Association announced, April 26, that its institutions will be opened to patients with other diseases, including mental ailments.

Cancer Meeting at Altoona.—A conference on cancer will be held at Altoona, June 28, under the chairmanship of Dr. William H. Howell. Speakers will include Drs. George W. Crile, Cleveland, on "The Cancer Problem"; Bernard P. Widmann, Philadelphia, "Value and Limitation of Roentgen Ray and Radium in Treatment of Cancer"; Thomas G. Simonton, Pittsburgh, "Medical Care of the Cancer Patient," and Maxwell J. Lick, Erie, "Tumor of Testicle."

Philadelphia

Hospital News.—The Association of Former Interns of the Hospital of the Protestant Episcopal Church held its second reunion at the hospital, April 27. The first was held five years ago and it is planned to continue the gatherings at five year intervals. Dr. Louis H. Mutschler was toastmaster at the banquet, which followed a day's visit to the hospital.

Society News.—Speakers before the Obstetrical Society of Philadelphia, May 2, were Drs. George L. Weinstein and Maurice H. Friedman, on "Pharmacological Study of the Uterine Fistula of the Unanesthetized Rabbit," and John H. Harris and Franklin L. Payne, "Value of Irradiation in the Treatment of Ovarian Carcinoma."——Drs. Paul A. Bishop and Paul H. Schraer, among others, addressed the Philadelphia Roentgen Ray Society, May 3, on "Bone Manifestations of Chronic Fluorine."——Drs. Albert A. Martucci and George M. Dorrance addressed the Philadelphia Neurological Association, May 25, on "Diathermy of the Brain in Hemiplegic Patients" and "Management of Spinae Bifidae by Repeated Drainage of the Sac," respectively.

RHODE ISLAND

Society News.—Dr. Robert Glen Urquhart, Norwich, Conn., addressed the Washington County Medical Society, April 11, on thoracic surgery.——Dr. Frederic J. Farnell, Providence, gave an address on "Topographical Problems in Brain Tumors" at the State Hospital for Mental Diseases, Howard, March 26.——Speakers at a meeting of the Providence Medical Association, April 2, were Dr. Peter Pineo Chase, on "Cancer of the Mouth," and Charles J. Smith, D.M.D., diseases of the jaw.——Speakers before the Providence Medical Association, May 7, were Drs. Thomas R. Goethals, Boston, on "The Risk to the Infant in Breech Delivery"; George Elliott May, Boston, "Dehydration Therapy in the Toxemias of Pregnancy," and Milton Goldberger, Providence, "Sterility: Investigations and Findings in Twenty-Four Cases."——Dr. Arthur H. Harrington, Providence, delivered an address on development of psychiatry in America at the State Hospital for Mental Diseases, Howard, May 14.

TENNESSEE

Hospital News.—A seventy-five bed addition for Negro tuberculosis patients was dedicated at Oakville Memorial Sanatorium, December 10. The sanatorium is maintained by the city of Memphis and Shelby County.

Radiologic Society Organized.—The Tennessee Radiological Society was organized during the annual meeting of the state medical association in Chattanooga, April 10-12. Dr. Charles M. Hamilton, Nashville, was elected president; Dr. Charles H. Heacock, Memphis, vice president, and Dr. Franklin B. Bogart, Chattanooga, secretary. The organization will not only promote radiology but endeavor to present to the profession of the state advances in the knowledge of radiology. It plans to meet yearly during the annual session of the Tennessee State Medical Association.

TEXAS

State Medical Election.—Dr. Samuel E. Thompson, Kerrville, was inducted into the presidency of the State Medical Association of Texas at its annual meeting, May 17; Dr. John H. Burleson, San Antonio, was named president-elect, and Dr. Holman Taylor, Fort Worth, secretary. The next annual session will be held at Fort Worth.

Society News.—Drs. Arthur C. Scott Jr. and Thelbert F. Bunkley, Temple, among others, addressed the Bell County Medical Society, Temple, April 4, on "Modern Management of Gallbladder Disease" and "Dystocia: Fetal and Maternal," respectively.——Drs. John M. Trible and John T. Moore, Houston, addressed the Hardin-Tyler Counties Medical Society, Kountze, April 4, on diseases of the prostate and treatment of cancer, respectively.——Dr. Clarence C. Garrett, Fort Worth, among others, addressed the Tarrant County Medical Society, Fort Worth, April 3, on bromide intoxication.

VERMONT

Typhoid Epidemic.—Newspapers reported, May 3, that forty-six cases of typhoid had occurred at Webberville, near Barre. The infection was traced to the water used in the stricken area and it was believed contaminated material had entered from sewers through drains damaged by the severe winter. One death was reported.

Clinical Meeting.—The Vermont State Medical Society held a clinical meeting in cooperation with the University of

Vermont School of Medicine, in Burlington, May 4-5. Most of the meetings were held at Mary Fletcher Hospital and were attended by 145 physicians. The faculty committee in charge consisted of Drs. Clarence H. Beecher, Ernest H. Buttles and Lyman Allen.

WASHINGTON

Public Health Association Formed.—Following a public health institute held at Washington State College, Pullman, May 4-5, the Washington State Public Health Association was formed, with Dr. Erval R. Coffey, state health officer, as the first president. Among speakers at the institute were Dr. James E. Drake, Spokane, on control of diphtheria in public schools, and Holland E. Wight, D.D.S., Yakima, on oral hygiene. Dr. Platt W. Covington, field representative of the Rockefeller Foundation, was the speaker at a dinner meeting.

State Eradicates Bovine Tuberculosis.—The U. S. Department of Agriculture announces that Washington has been designated a modified accredited area in the eradication of bovine tuberculosis. Official tuberculin testing indicates that infection has been reduced to less than 0.5 per cent. Tuberculosis eradication work began in Washington in 1918 and the first county to become a modified accredited area was Wahkiakum, so designated in 1927. Approximately 2,000,000 tuberculin tests have been applied. Arrangements have been made for retesting in order to eliminate any remaining infection. Washington is the fourteenth state to win this recognition. The states already accredited are North Carolina, Maine, Michigan, Indiana, Wisconsin, Ohio, Idaho, North Dakota, Nevada, New Hampshire, Utah, Kentucky and West Virginia.

WEST VIRGINIA

State Medical Election.—Dr. Rome H. Walker, Charleston, was elected president of the West Virginia State Medical Association at the annual meeting in Huntington, May 14-16. Other officers elected are Drs. William W. Strange, Huntington, and Robert C. Hood, Clarksburg, vice presidents; Thomas M. Barber, Charleston, treasurer, and Mr. Joe W. Savage, Charleston, secretary, reelected. Wheeling was selected as the place of the meeting in 1935.

WISCONSIN

Meetings of Radiologists.—The section on radiology of the State Medical Society of Wisconsin held its tenth annual meeting at the Colonial Club, Janesville, May 18-19. Dr. James T. Case, professor of radiology, Northwestern University School of Medicine, Chicago, was the guest speaker; he gave an address at a banquet on "Diagnosis and Treatment of Diverticula of the Gastro-Intestinal Tract" and another at the scientific meeting on "Interesting Gastro-Intestinal Problems."

Dinner to Past Presidents.—Drs. James C. Sargent, Edward L. Tharinger and Paul M. Currer, Milwaukee, gave a dinner, April 25, to past presidents of the Medical Society of Milwaukee County, with Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, as guest speaker. The guests were Drs. William P. Jobse, Lewis G. Nolte, William H. Washburn, Arthur J. Patek, John J. McGovern, Robert G. Sayle, Franz Pfister, George H. Fellman, Frederick A. Stratton, Stanley J. Seeger, Charles H. Stoddard, Alfred W. Gray, Henry J. Gramling, Ralph P. Sproule, Edward L. Tharinger, Charles Fidler, Harvey E. Webb, Urban A. Schlueter, Dexter H. Witte and Mr. Theodore Wiprud, executive secretary of the society, all of Milwaukee; and Dr. Rock Sleyster, Wauwatosa. Drs. John W. Coon, Stevens Point, and Louis F. Jermain were unable to attend.

Society News.—Dr. Hugh Cabot, Rochester, Minn., was the guest speaker at the final meeting of the Milwaukee County Medical Society for the season, May 11, on "War Experiences with the Royal Medical Corps." The Milwaukee Professional Men's Orchestra, organized a few months ago, made its first public appearance at this meeting.——Drs. Hilmar G. Martin and Herbert G. Schmidt addressed the Milwaukee Oto-Ophthalmic Society, April 24, on "Biophysics of the Eye" and "The Elschnig Intracapsular Cataract Operation," respectively.——Dr. Louis Hamman, Baltimore, among others, addressed the Medical Society of Milwaukee County, April 13, on "Diagnosis of Obscure Fever."——Dr. Benn P. Churchill presented a paper on "Maxillary and Sphenoid Diseases Compared" before the Milwaukee Oto-Ophthalmic Society.——Dr. Frederick O. Tonney, Chicago, addressed the University of Wisconsin Medical Society, May 8, on the diagnosis of amebic dysentery.

GENERAL

Medical Bills in Congress.—*Change in Status:* H. R. 3768 has passed the House, changing the name of the retail liquor dealers' stamp tax in the case of retail drug stores or pharmacies to "medicinal spirits stamp tax." *Bills Introduced:* H. R. 9675, introduced by Representative Reece, Tennessee, proposes to provide that any veteran of any war who was not dishonorably discharged, who is in need of hospitalization and is able to defray the expense therefor, may be furnished hospitalization in any Veterans' Administration facility, within the limitations existing in such facilities, on paying a per-diem fee in an amount equal to the average cost of hospitalization per patient day at the facility for the month previous. H. R. 9727, introduced by Representative Collins, Mississippi, proposes to authorize compensation by the United States to persons disabled by the use of improperly made jamaica ginger.

American Proctologic Society.—The thirty-fifth annual meeting of the American Proctologic Society will be held in Cleveland at the Hotel Cleveland, June 11-12. Speakers will include:

Dr. William T. Brockman, Greenville, S. C., An Atypical or Unusual Attack of Amebiasis.
Dr. Edward C. Davis, Philadelphia, Is Colitis a Deficiency?
Dr. Herbert T. Hayes, Houston, Texas, Perirectal Streptococcic Cellulitis.
Dr. Rufus C. Alley, Lexington, Ky., Rectal Stricture—New Developments in Etiology.
Dr. Curtice Rosser, Dallas, Texas, Relation of Anal Fistula to Development of Cancer.
Dr. Charles E. Howard, Cincinnati, Rectosigmoid Cancer with Extensive Gangrene.

Dr. Thomas E. Jones and his associates at the Cleveland Clinic Hospital will give an operative clinic and lectures Tuesday afternoon.

Medical Historians' Meeting.—The American Association of the History of Medicine will hold its annual meeting in Cleveland, June 11, at the Hotel Carter, in afternoon and evening sessions. The following papers, among others, will be presented:

Dr. Victor Robinson, New York, Karl Koller and Anesthesia.
Dr. Richmond C. Holcomb, Highland Park, Pa., Ruiz Diaz de Isla and the American Origin of Syphilis.
Dr. Edward B. Krumbhaar, Philadelphia, William Hunter of Newport.
Dr. Joseph L. Miller, Chicago, Experimental Methods of Claude Bernard.
Otto Glasser, Ph.D., Cleveland, Roentgen's Ideals as Reflected in His Letters.
Dr. Logan Clendening, Kansas City, Laryngological Causes of the Great War.
Dr. William Gerry Morgan, Washington, D. C., Shakespeare's Knowledge of Medicine.

Officers of the association are Drs. James B. Herrick, Chicago, president; Charles N. B. Camac, New York, and William S. Middleton, Madison, Wis., vice presidents, and Edward J. G. Beardsley, Philadelphia, secretary.

Conference of Health Officers.—The Conference of State and Provincial Health Authorities of North America will be held at the U. S. Public Health Service Building in Washington, D. C., June 5-6. The speakers will include:

Dr. Herman N. Bundesen, Chicago, Chicago Epidemic of Amebic Dysentery.
Dr. George W. McCoy, Washington, Epidemiologic and Laboratory Investigations of Amebic Dysentery.
Dr. Eugene L. Bishop, Nashville, Tenn., Tennessee Valley Health Program.
Arnold Bennett Hall, LL.D., of the Brookings Institution, Washington, Public Administration Trends in Relation to Public Health.

Following this meeting will come the thirty-second annual conference of state and territorial health officers with the U. S. Public Health Service. The program includes the following:

Dr. James P. Leake, Washington, Epidemic Encephalitis.
Dr. Dean Lewis, Baltimore, President, American Medical Association, The Quality of Professional Services.
Arthur W. Hedrich, Sc.D., associate in biostatistics of Johns Hopkins University School of Hygiene and Public Health, Baltimore, Recent Changes in the Incidence and Fatality of Smallpox in the United States.

CORRECTION

The Pay of a First Lieutenant.—In THE JOURNAL, May 12, page 1624, under "Physicians Wanted for Civilian Conservation Corps," it was stated that the pay and allowance of a first lieutenant are about $250 a month. A first lieutenant of the Medical Reserve Corps attached to one of these camps considers that statement misleading. While pleased with the work, with regard to the pay he says: "The actual pay that I receive is $166.47 (this includes the recent 5 per cent increase). From this sum I must pay about $15 for mess. The approximate pay of $250 referred to in the article refers only to those officers who have a dependent wife. From this sum there is a deduction of 10 per cent according to the federal economy program."

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 6, 1934.

Pasteurized Versus Raw Milk

It might be supposed that the question of raw versus pasteurized milk had been settled by the practically unanimous pronouncement of the medical profession. But a number of important persons—politicians, agriculturists and even the eminent professor of botany at Oxford, Sir Frederick Keeble, who was controller of the horticultural and food products department of the Board of Agriculture, have attacked the orthodox view in the columns of the *Times*. Their main arguments are that pasteurization impairs the nutritive qualities of milk, that the tuberculosis admittedly conveyed to man by raw milk should be abolished by eradication of the disease in cattle, that diseases other than tuberculosis conveyed by raw milk are unimportant because of their rare occurrence and that there is lack of agreement in the medical profession as to necessity for pasteurization. Lord Dawson, president of the Royal College of Physicians, has replied to these arguments as follows: The excellent project for the eradication of tuberculosis in cattle will take many years. The diseases other than tuberculosis conveyed by raw milk are serious and not infrequent; e. g., septic sore throat, scarlet fever and undulant fever. Within the medical profession there is a consensus for pasteurization perhaps unfamiliar to politicians. The fellowship of the Royal College of Physicians embraces all branches of medicine—not only clinical medicine but also pathology, bacteriology and public health. At the comitia held April 26 the following report was unanimously passed: 1. A daily ration of milk is important for the growth and health of children. 2. The risk of tuberculosis and other diseases following the consumption of raw milk is considerable. 3. Such risk can be obviated by the use of milk submitted to low temperature pasteurization. 4. Such pasteurization does not materially interfere with the nutritive value of milk. The college, while realizing that milk should be produced from cows free from infection and under conditions of cleanliness, recommends: (*a*) that local health authorities should be given power to require that milk sold within their areas should be pasteurized under official control, (*b*) that steps should be taken to permit the pasteurization and sale, as such, of milk from tuberculin-tested herds, and (*c*) that, in areas where adequate pasteurization is now impracticable, milk should be boiled before use. Also butter has entered into the controversy. Dr. J. A. Arkwright, bacteriologist of the Lister Institute, said that almost all imported butter, which in 1932 constituted 88 per cent of that consumed in this country, has been rendered free from risk of infection by high temperature pasteurization of the cream before churning. Some English butter has been treated in the same way. Dr. Arkwright also pointed out that, although living tubercle bacilli may be present in fresh or salt butter or cheese recently made from raw milk, they lose their vitality in these products in from one to eight weeks.

The Milk Marketing Board (a body appointed by the government to control the milk industry) has produced a purer milk scheme, which will come into operation in October, when the new contract period begins. It is proposed to prescribe a standard of purity for milk, and producers who conform to it will receive a bonus on every gallon of milk. Funds for the payment of this bonus will be provided by the levy of a small sum on all producers of milk. The new grade will be termed "accredited milk." The farm, the cow and the milk will be subject to expert examination by local health authorities. The object is not to produce a highly superior grade of milk of limited quantity but to raise the general standard of milk. It is thought that the majority of producers, attracted by the bonus, will conform to the prescribed standard of purity.

The Human Factor in Road Accidents

Sir Ernest Graham-Little (dermatologist and member of parliament), who is joint chairman of the Road Accidents Parliamentary Group, points out in the *Times* that more than 50 per cent of road accidents are due not to dangerous machinery but to the human factor (the make up of those who operate the machines). Modern psychologic methods have produced reliable tests which show that there are "accident-prone" individuals who are a danger to themselves and to the community. Dr. C. S. Myers, principal of the National Institute of Industrial Psychology, estimates that at least 80 per cent of fatal automobile accidents are due to the human factor. At the National Institute of Industrial Psychology a group of tests have been standardized and found valuable in four separate fields: (1) selecting the best drivers from a a number of applicants for a post, (2) selecting the men most suitable for training as drivers, (3) discovering what is lacking in drivers of poor ability in order to remedy deficiencies, if possible, and (4) advising those who intend to learn to drive as to what degree of ability they are likely to develop. In the application of these tests, the following qualities are examined: (1) accuracy, speed and regularity of response to various signals; (2) resistance to distraction; (3) effective distribution of attention; (4) vision and optical defects; (5) ability to estimate correctly the speed, size and distance of other vehicles; (6) readiness to grasp the essentials of a dangerous situation and to respond appropriately; (7) confidence and general road behavior in driving a model car through moving scenery. The apparatus for these tests is simple and cheap and the technic is easy to learn. It is now carried out in certain large automobile schools. Sir E. Graham-Little therefore asks that selective tests should be included in the new road traffic bill.

First Woman Fellow of Royal College of Physicians

For the first time in the 400 years of its existence, the Royal College of Physicians has elected a woman to the fellowship. She is Dr. Helen Mackay, physician to the Queen's Hospital for Children, London. She was one of the workers sent out to Austria in 1920 to study the rickets which the war and postwar shortage of food produced. Five years later she investigated the incidence of rickets in London at the request of the Medical Research Council. But her most important work has been on the anemia of infancy. In a report published by the Medical Research Council in 1932, she showed that a form of anemia, not dissimilar to the almost extinct chlorosis of young women, was prevalent among East London infants, whether breast or bottle fed, and was readily curable by administration of iron. The etiology was something of a riddle. Dr. Mackay suggested that the anemia might be due to deficient store in the liver or wasteful utilization of iron, or that there might be some controlling factor, comparable to vitamin D. Probably a deficiency of iron in the diet of a pregnant woman would predispose the infant to anemia. The smaller the infant at birth, the greater the likelihood of anemia, for the more rapid the growth relative to the initial weight, the more quickly is the iron store of the liver exhausted.

The Refugees from Germany

The governing body of the High Commission for Refugees from Germany, which was set up by the League of Nations last autumn, has met in London under the presidency of Lord Cecil. Delegates representing Belgium, Czechoslovakia, Denmark, France, Great Britain, Italy, Holland, Poland, Switzerland, Sweden and the United States were present. The high commissioner, Mr. James G. McDonald, stated that, by nego-

tiations, governments had been induced to postpone or soften administrative regulations that would have made the lot of the refugees more difficult, and some countries of potential permament residence had been persuaded to lessen restrictions on emigration. But the present economic crisis made it impracticable to ask governments to grant general facilities to work to the refugees. Some, however, had given permits to refugees possessing certain qualifications, or organized in cooperative groups, to establish themselves. It was an error to represent the refugees as simply a burden on the countries to which they went. Those who had been permitted to establish a business or industry had brought employment to a number of persons in the country and in some cases had started important new industries. The intellectual refugees constituted a peculiarly difficult problem. The number of academic persons displayed was approximately 1,200, and of these somewhat less than half had actually emigrated. The refugees of the professional group probably totaled more than 3,000. While more than 8,000 students had found it impossible to continue their studies in Germany, about 1,500 had emigrated. Unfortunately, nearly all the academic places that had been found for the refugees were of a temporary nature. In England, fifty refugees had been placed in agricultural schools, and more than 100 had been apprenticed in technical workshops and trades. A number of refugee physicians had been admitted to English and Scottish universities with a view to obtaining in a year's course a medical qualification that would enable them to practice in parts of the British Empire. The larger number of the refugees of an age at which retraining was possible were being prepared for new vocations. The following figures indicate the distribution of the refugees: France, 21,000; Palestine, 10,000; Poland, 8,000; Czechoslovakia, 3,500; Holland, 2,500; England, 2,000; Belgium, 2,300; Switzerland, 2,500; Scandinavia, 2,500; Austria, 800; Saar and Luxembourg, 1,000; Spain, 1,000; Italy, 800; United States, 2,500; other countries, 2,000. Total, 62,400.

The Drug Traffic

The fifth annual report, for 1933, on illicit drug traffic by Russel Pasha, director of the Central Narcotics Intelligence Bureau, shows that in Europe the illegal manufacture of drugs has almost been destroyed and the traffic largely brought under control. But a fresh danger has arisen in the Far East, where in Manchuria a new field of drug traffic is being opened up, which may in time become a menace to the world. What appears to be a government opium monopoly is functioning in Manchuria, and this encourages the growth of the local product and the import of Persian opium. Bulgaria is now almost the only European country manufacturing morphine and cocaine, deliberately designed for illicit traffic. The survival of the manufacture in spite of the ostensible willingness of the Bulgarian government to suppress it seems to be due to the occult influence of various Macedonian organizations. The effects of the limitation of the drug traffic are evident in Egypt, where "white drugs" are now available only in an extremely adulterated form and the traffickers are turning their attention mainly to opium and hashish. The latter comes chiefly from Turkey and Syria, of which the former is the chief purveyor. It is hoped that, owing to the energetic attitude of the Turkish authorities toward the drug traffic, the cultivation of hashish may be gradually controlled. Syria has already taken effective steps to prevent it. A danger arises from the existence in Greece of a large body of professional smugglers, many of whom have been deported from Egypt but still carry on their trade from the Piraeus and the Greek islands. However, the Egyptian statistics of drug addicts are striking. On a given date in 1929 there were no fewer than 5,681 addicts among the convicts of Egyptian prisons. On the same date in 1933 the number was only 674.

PARIS

(From Our Regular Correspondent)

April 11, 1934.

Silicosis

The Société d'études scientifiques sur la tuberculose pulmonaire devoted a session recently to the discussion of silicosis. Mr. Magnin described the condition as a pulmonary fibrosis resulting from prolonged inhalations of fine siliceous dust. Five years, or even three years, is sometimes sufficient for a workman to develop silicosis. According to Magnin, it is the inhalation of the dust of siliceous rocks, and that alone, which causes pulmonary fibrosis. Pulmonary fibrosis may develop in a person who is already tuberculous. Most commonly, however, pulmonary fibrosis of purely silicotic origin develops in persons who have no history of previous evolutional tuberculous infection. On the other hand, silicotic fibrosis sometimes reveals a dormant primary infection. Experimentally, it is usually impossible to cause pulmonary fibrosis in an animal until an infection precedes. Finally, from the chemical point of view, the rôle of free silica in the genesis of so-called silicotic fibrosis of the lung cannot as yet be regarded as fully demonstrated. Recent research by Jones has produced evidence supporting the possible intervention of another substance contained in rocks—sericite. While it is evident that rock dusts are injurious, the damage may not be due to a specific chemical action but rather because they facilitate the development of tuberculous infection. Mr. A. Courcoux referred to the practice in foundries whereby workmen are required to smooth off steel castings in a sand blast, which operation often gives rise to pulmonary silicosis. In some foundries there has been such a high mortality among the workmen, and particularly among those who thus removed the rough places on bicycle parts, that manufacturers have been compelled to supply closed cages, the workmen standing on the outside of these. Since, however, metal tailings have been used for removing rough projections, the untoward manifestations have ceased to develop. Mr. d'Hour reported the peculiar case of a workman in whom a roentgenogram of the lung revealed a granite-like image that pointed to silicosis or granulosis. This man had worked, up to the previous year, in the mines of Nord, at boring in solid rock. Messieurs Rist, Mayel and Donbrow, who studied the question from the medicolegal point of view, are convinced that silicosis cannot develop other than in persons already infected with the tuberculous virus, and hence they refuse to regard it as a true occupational disease, which is in accord with the proposed agreement elaborated by the international bureau of labor. They declare that the acceptation of silicosis as an occupational disease should be avoided by French legislation.

International Federation to Combat Cancer

On the initiative of Mr. Justin Godard and the endorsement of the International Congress on Cancer, held last year in Madrid, a meeting was recently held at the ministry of public health, which was attended by a large number of cancer specialists from various countries, the purpose of which was to prepare the basis of an international federation of the various national leagues against cancer, and to draft a constitution. Justin Godard was elected president. The assembly chose a number of vice presidents: Professor Borst, Germany; Professor Maisin, Belgium; Professor del Rio Hortega, Spain; Professor Wood, United States; Professor Handley, Great Britain; Professor Bastianelli, Italy; Professor de Vries, Netherlands; Nazayo, Japan; Dluska, Poland; Keyberg, Norway; Athias, Portugal, and Dominguez, Cuba. Mr. Bandaline was chosen general secretary. Paris was selected as the headquarters of the federation and as the center for the deposition

of the records, the statistics and other documents of the federation. The triennial session of the officers will be held in a different capital each time to enable them to observe the progress made in each country. Borst, the German delegate, recommended that the new organization, while exercising a general control over the societies existing in the various countries, should respect their independence and should confine itself to supplying suggestions and documentary information. Long discussions were held on the unification of the terminology of tumors and that of statistics. At present, statistics are collected in such a widely different manner that they do not lend themselves to comparison. It was finally decided that every country should be allowed to follow its own custom and that the federation would be content to supply the national societies with a model form for the collection of statistics. The question of publishing an international review dealing with cancer was taken under advisement. It was agreed that the federation should remain associated with the cancer section of the international bureau of health of the League of Nations, with headquarters in Geneva, a section that, in reality, is not particularly active, but it was thought to be impracticable to endeavor to replace it at present. Borst of Germany, however, in conformity with the ideas of the present government of the reich, thought that it might be replaced. The delegates were entertained at two banquets. They visited the cancer institute of the Faculté de médecine de Paris at Villejuif, which is under the direction of Professor Roussy, and the Curie institute, where Madame Curie and Professor Regaud were the hostess and host.

BERLIN

(From Our Regular Correspondent)

April 2, 1934.

Venereal Disease—Moving Pictures and the Press

In 1927 Germany changed the law pertaining to the combating of venereal disease. In the intervening period a number of changes have been made. The law has had a good effect. In spite of the unquestionable retrogression of venereal diseases, and particularly of syphilis, there is still a large proportion of the population of Germany affected with venereal disease. Detailed statistics on the subject were given in a previous letter (THE JOURNAL, January 13, p. 144). In October 1927 the central government took over the combating of venereal disease, which had previously been left to the Gesellschaft zur Bekämpfung der Geschlechtskrankheiten. During the twenty-five years of its existence this society had collected the basic statistics needed for an understanding of the status of venereal disease in Germany. Prof. J. Mayr, the director of the Freiburg Klinik für Haut- und Geschlechtskrankheiten, brought out before the Freiburg Medical Society that recent months have witnessed the launching of a publicity campaign among the young persons who belong to the various political leagues of the S. A., the S. S., the Stahlhelm, the work camps, and the like. Mayr emphasized that the law, in its present form, has no teeth in it, as it does not provide penalties. Then it was found that this law furnished no adequate means of checking prostitution through the suppression of "street walking," whereas the new government, through an effective recasting of the paragraph in question, has been able to carry on a vigorous crusade against prostitution. It appears desirable to make the notification of venereal disease obligatory in Germany. The proposed plan of having certain mergers of societies take over the expense of treatment is commendable, since only by such means will it be possible to get quickly in touch with persons having venereal disease and to effect their cure —at least to the extent that they will no longer be a menace. In addition, all measures will be supported that tend to strengthen the sense of sexual responsibility, especially among the youth.

Professor Uhlenhuth emphasized the need of adopting strict measures with reference to race hygiene, or eugenics. The tragic decline in the birth rate is due in part to the widespread incidence of venereal disease. Fifty per cent of all childless and one-child marriages point to gonorrhea in at least one spouse. Gonorrhea is responsible for the loss of 200,000 births annually, without attempting to measure precisely the baneful effects of syphilis. If the notification of venereal disease should be made compulsory, suspicious persons would be brought in at once for medical examination; for at present the demand that they present a medical certificate often causes such persons to change their residence, whereby the authorities lose sight of them. The result is that new foci of infection are established. A search for the source of a new infection cannot be instituted unless a special request is made, and many persons refuse to make such a request for fear of unpleasant experiences. To raise the standard of morals in matters of sex, other things are needed. The elimination of trashy and vicious literature as presented in word and picture, and a general purification of the press, the motion picture houses and the bars would be a pleasing beginning. Energetic efforts should be made to check clandestine prostitution. Uhlenhuth emphasized that present conditions are absolutely unbearable and constitute a great menace to youth, particularly in the university cities. The rendezvous taverns and hotels should be abolished. It appears doubtful whether it will be possible, in harbor and university cities, to dispense entirely with restricted districts. In Bremen, prostitutes are permitted to rent, on their own account, certain houses in certain streets, where they are subject to medical and police control but are not exploited by professional brothel keepers. In some countries (America and Hungary) such methods are being reintroduced.

Allergy in Relation to Rheumatism

Rheumatism in the conception of today was unknown to ancient medicine, as Prof. Ludwig Aschoff of the University of Freiburg pointed out before the Medical Society of Freiburg im Breisgau. An endeavor must be made to separate from the confused mass of rheumatic disorders those in which etiology is known or, if unknown, those which are of a specific nature. Among the specific disorders may be classed acute articular rheumatism. All attempts to discover the causative agent have thus far been fruitless. In Aschoff's opinion the causative agent is not to be sought in any known streptococcus. All attempts to explain the origin of specific nodules as due to allergic reaction are of no avail. The nodule formations occurring after direct injection of the joints or intravenous injection are not of a specific nature. The nodules that develop in the heart muscle or elsewhere following intravenous injection may have a similar appearance, but the proof of identity is lacking. Aschoff stated that naturally, in so-called serum horses that are being constantly injected with doses of toxin, the joints that are weight bearing in the standing posture, and particularly the extremities, may show evidence of damage due to toxins. Thus the well known forms of serum arthritis may arise; but these have nothing to do with so-called rheumatic disease. They cannot, however, be termed allergic diseases but, at the most, arthritis with allergic symptoms. The conditions are similar with respect to asthma and the so-called allergic disorders of the upper air passages. Here it might be more accurate to speak of pollen bronchitis with allergic symptoms. In any event, all these allergic disorders have nothing to do with the rheumatic diseases.

The attempt to include arteriosclerosis among diseases of a rheumatic nature is not justified. Aschoff called attention to conditions in Java, where arteriosclerosis is common but genuine articular rheumatism or rheumatismus specificus infectiosus rarely occurs among natives. Aschoff emphasized how necessary

it is to investigate the etiology of all so-called rheumatic disorders. Such etiologic research appears to him to promise better results than nosologic research. The cause of the confusion lies in the fact that a clinical symptom has been chosen for various disorders that are etiologically entirely different. The disorder should be named from the etiologic point of view, and in every disease a type with rheumatic symptoms should be distinguished from one in which rheumatic symptoms are lacking.

Roentgen Safety Films

Roentgen safety films possess advantages over the celluloid films in that they are not easily ignited when exposed to a flame, nor are they easily decomposed by heat. They burn only in a strong air current and smolder only when exposed to great heat. Burning safety films can ordinarily be extinguished by blowing on them and easily by pouring water over them. In quantity and composition the decomposition gases of safety films are no more dangerous than those arising from burning paper, wood or blankets.

The federal minister of the interior has announced that users of these films will be relieved of the necessity of adopting the special safety measures made necessary by the menace of celluloid films. Comparing the relative danger of celluloid films and of safety films, it is stated that the storage of safety films constitutes no more of a fire menace than the storing of paper documents.

ITALY

(From Our Regular Correspondent)

March 31, 1934.

Congress of Orthopedics

The Società italiana di ortopedia held its twenty-fourth national congress at Palermo. Prof. Enrico Ettore said that the fundamental principles of the treatment of fractures are early and accurate reduction, absolute immobilization of the focus until complete consolidation of the callus has occurred, and active mobilization of the joints. In fractures of long bones, the treatment comprises direct traction on the skeleton with a wire, applied as early as possible with the limb in an easy position, so as to obtain the greatest muscular relaxation. The reduction having been taken care of, immobilizing appliances are applied, which permit the continuation of traction on the double inclined plane without any secondary displacement. Absolute immobility of the focus of the fracture is indispensable, but it is no longer permissible to enclose a limb in a plaster cast and await consolidation. Modern treatment is understood in an active sense, and muscular contraction is worth more than any passive movement and helps more to maintain muscular tone than do electric currents. The period of traction is reduced to what is absolutely necessary, apparatus being applied that is capable of maintaining the reduction while permitting the patient to walk. Open treatment of fractures has lost ground everywhere. In fractures of the spinal column the speaker is opposed, save for certain rare exceptions, to any intervention whether surgical or reductive. In fractures of the neck of the femur, when bloodless or operative treatment (Smith-Petersen nail extension) does not inspire sufficient confidence, he favors subtrochanteric osteotomy, which, if applied in time, enables the patient to walk within four months of the accident.

Boehler of Vienna illustrated with films and with presentation of apparatus the various methods of treatment employed by him in fractures and luxations of the various parts of the skeleton. For fractures of the spinal column he is an advocate of reduction performed under local anesthesia.

Palagi, on the basis of statistics of the Clinica ortopedica of Florence, which, during the past eight years, comprised sixty-seven cases of fracture of the upper end of the femur, is an advocate, in intracapsular fractures, of bloodless treatment, which permitted him to secure definitive consolidations in 76.5 per cent of the cases.

Rapaccini reported that in the Istituto ortopedico toscano in forty-six cases of fracture of the shoulder satisfactory results were obtained by the employment of the bloodless method, with abduction and external reduction of the arm and anteposition of the elbow.

Fusari of Turin reported on forty-one birth traumatisms (namely, twenty-eight fractures and thirteen epiphyseal displacements). Epiphyseal detachments are considered grave. The fractures have an almost constant site; namely, at the middle third of the humerus and between the middle third and the upper third of the femur. In certain cases of birth fracture, open reduction and osteosynthesis give good results.

Rocher of Bordeaux discussed myositis ossificans progressiva. He said that one can secure an arrest of the ossifying process through action on the parathyroid apparatus. If the calcemia is not modified, removal of the osteomas is followed by a rapid recurrence.

The second topic, "Arthrodesis in Osteo-Articular Tuberculosis," was discussed by Professor Zanoli. He brought out that the basic treatment, so long as there is an active tuberculous focus, remains orthopedic treatment and helioclimatotherapy. The new surgical trend (return to arthrodesis) has, however, gained ground in recent years.

Osteosynthesis of the spinal column has been on trial for more than twenty years. The consensus is almost unanimous. The ankylosing operation on the spine may be considered under two types: the Albee method and the Hibbs technic. The former is the preferred method for the treatment of Pott's disease.

In lesions of the hip, statistics give 88.7 per cent of good results from arthrodesis in a series of 700 cases. The operative methods are numerous. The prevailing tendency is to reserve arthrodesis for the sequels of coxitis, and to avoid resorting to it in the evolutional types occurring in children. In incomplete and painful ankylosis of the knee, arthrodesis by infixion was recommended, but resection is preferable. As to the foot, the speaker, in cases of tuberculosis localized in the tibiotarsal joint, tried arthrodesis by nail extension and also the extra-articular method. He found the latter preferable.

Fiorentini of Milan spoke on the remote outcome of vertebral osteosynthesis in tuberculous spondylitis and concluded that osteoplastic fixation of the vertebral column is effective but should not cause one to neglect the many other general and orthopedic aids. Mezzari performed arthrodesis in fifty-four cases, involving mostly the hip, in cases of osteo-articular tuberculosis. He had a high percentage of definitive recoveries.

Pacini, in forty-seven spondylitic patients treated by arthrodesis, reexamined them from two to six years after intervention and found good clinical and roentgenographic results.

Calandra of Palermo spoke on the treatment of articular tuberculosis with a new method that he applies in specific types involving the knee. It consists of injections of alcohol at a temperature of 90 C. in the region of the nerves and vessels of the diseased joint. He secured favorable results in three cases. As the treatment is recent and the cases thus treated are few, the speaker refrains from drawing any final conclusions.

A New Academician

Prof. Pietro Rondoni, of the department of pathology at the University of Milan, was recently named "academician of Italy." Professor Rondoni, born in 1882, is the author of many scientific works, which in his earlier years dealt chiefly with morphology. Particular interest attaches to his serologic researches, in which he studied various problems pertaining to the Wassermann reaction; studies on trypanosomiasis; allergic inflamma-

tion and the histologic peculiarities of experimental tuberculosis, and pellagra and other diseases due to defective diets. He was the first to call attention to the involvement of the suprarenals in experimental scurvy. His treatise on biologic chemistry appeared recently in a second edition.

Professor Albertoni

Senator Pietro Albertoni, professor emeritus of physiology at the University of Bologna, has died. Three years after graduation, he became instructor in physiology at the University of Siena. He held later a chair in pharmacology, first at Genoa and then at Bologna. He succeeded Augusto Murri in the management of the Clinica medica. There is scarcely a field of physiology or pharmacology in which Albertoni had not done research. Special merit attaches to his researches on the digestive tract, the heart and the nerve centers. From his school have gone many students who have occupied chairs in Italian universities. Albertoni was the editor of the scientific periodicals *L'Università, Bollettino delle scienze mediche* and *L'Università Italiana.*

VIENNA

(From Our Regular Correspondent)

April 10, 1934.

A Test Serum for the Blood Groups M and N

The discovery of the two blood groups M and N has confronted scientists with problems that have been particularly difficult, owing to the fact that the new blood groups form no antibodies in the human blood. For that reason, too, the mixture of M blood with N blood during a transfusion does not constitute a menace. After much research, Prof. Dr. M. Eisler of the Staatliches Serotherapeutisches Institut in Vienna developed a useful test serum from the blood of rabbits. But this serum could be preserved only a short time, so that it was not practical, for instance, in connection with court proceedings. Now Eisler has produced a test serum that can be preserved for at least one year and is suitable for transportation. This serum can be used for the determination of parenthood. To the previously known blood groups A, B, AB and O, three new groups have been added; namely, M, N and MN. Comprehensive investigations on more than 1,000 families and more than 3,000 children have shown that likewise the newly discovered blood groups are inherited in accordance with definite laws. If the blood group M or N is present in the blood of the parents, it will be found without exception in the blood of the children of that union. It is, for example, impossible that a child with the M blood group should have parents with the N blood group. In that case, therefore, in connection with court proceedings to establish the paternity of a child, a father with the N group can be excluded. The determination of the M and N groups alone is sufficient to divert suspicion from a suspected father in 18 per cent of the cases. In combination with A and B group, the number of positive results is increased to 31 per cent. Thus, this production of stable and ready-to-use test serum M and N in Vienna makes possible its use in general legal practice for the determination or rejection of paternity.

The Problem of Artificial Nutrition

Addressing the Vienna Medicinisches Doktorenkollegium, Dr. W. Lapp gave an exposition of the essentials of artificial nutrition. Emergency nutrition through the esophageal or nasal sound or a gastric or intestinal fistula can be carried on for an extended period. The foods must be seasoned in the same manner as would be necessary for the normal palate in order to maintain an equilibrium of the secretory activity. An adequate supply of vitamins must be introduced in case the normal food lanes remain impassable for some time. With the esophageal or the nasal sound, about every two hours, fluids are introduced such as café au lait, bouillon with egg, oatmeal soup; mixtures of milk, cream, egg yolk and sugar; wine with egg, barley soup and the like. Between meals, fruit juices freshly prepared and sweetened should be given. Through a gastric fistula, more solid foods may be introduced. If hydrochloric acid is present in the stomach in normal quantities, one may follow an almost normal diet. If there is anacidity, the proteins should be reduced to a minimum and uncooked foods should be entirely omitted. One may introduce 2,500 calories in the form of thé au lait (a mixture of tea and hot milk), oatmeal soup with egg, cream, cocoa, barley soup and sago, with suitable preparation. If it is a question of an intestinal fistula following jejunostomy, one must not count on the digestive activity of the stomach and, as in the gastrostomy diet in achylia, one should follow the diet just given. The narrow lumen of the intestine permits the introduction of only a small quantity of fluid at a time, which should be infused slowly, because of the danger of retrogressive peristalsis.

Rectal feeding will not furnish adequate nutrition over a long period. In the lower intestine, the resorption of fat and proteins is uncertain. Meat juices, eggs, milk, blood derivatives, casein and pulverized vegetable protein should be omitted from the nutritional clysma. Albumoses and peptones can be resorbed, but, as a rule, the irritation is greater than the beneficial effect. The mucous membrane of the large intestine being poor in ferments, it is powerless when called on to digest normal fats, with the possible exception of egg yolk fat. Only isotonic fluids such as salt and dextrose solutions are resorbed without irritation, preferably in the form of a drip clysma. As a nutritional clysma, one may give a mixture of 10 per cent dextrin, 3 per cent alcohol and 0.7 per cent sodium chloride to 1 liter of water. In the presence of bleeding gastric ulcer, even such a clysma may be injurious, owing to reflexive stimulation of the production of gastric juice. Nutrition by means of a duodenal sound is suitable only in psychogenic, incoercible vomiting, but it is often just as useless as the other methods of artificial nutrition (percutaneous, parenteral, which have no practical value).

Operative Treatment in Tuberculosis of the Bones

Dr. Erlacher of Graz delivered an address on the results obtainable by surgical interventions in tuberculosis of the bones and joints. On the series of 420 patients, 700 interventions were performed. The patients were under observation from 1919 to 1933. In fifty-eight cases, operative evacuation of the tuberculous focus was resorted to—a total of eighty-seven foci. Whereas of 207 cases treated conservatively nineteen ended fatally (the patients were all children under 14 years of age), of the patients operated on only three died, and these died from intercurrent diseases that had no connection with the operation. In not one of the cases observed could a dissemination of the tuberculous disease as a result of the operation be demonstrated. The cases treated conservatively showed a mortality four times as high as those in which an operation was performed. Of the latter group, twenty-eight patients have presented no recurrence after the lapse of five years, and a few patients have been under observation for thirteen years, and their cure appears to be permanent. The functional results are excellent. Of twenty-nine "joint cases," nineteen present joints that have entirely normal movements—one hip joint, four knee joints and four elbow joints. In only four cases did stiffness remain as before the intervention. The tuberculous nature of the disorder was clearly established in all cases by animal experiments or histologic examination.

The advantage of operative over conservative treatment is apparent from the economic point of view. Conservative treatment of the hip or knee covers a period of about four years. In the case of small bones and joints, two years is the average,

whereas a spine requires six years of conservative treatment to be cured. The operation, on the other hand, may remove all tuberculous tissue, so that definitive recovery usually is effected within one year. In only eight cases was the period of healing after the operation more than two years. Erlacher recommends as imperative the earliest possible operative evacuation of the bone or joint focus—that is, in early childhood, if possible. In the choice of operative cases, due consideration must be given to the general condition of the patient.

Wenckebach's Birthday

The internist Karl Friedrich Wenckebach celebrated his seventieth birthday, March 24, being in complete possession of his physical and mental vigor. Professor Wenckebach was born in the Netherlands. His first intention was to become a zoologist, but he soon turned his attention to medicine. While a practitioner in a rural district, he devoted himself to studies on cardiac conditions, especially arrhythmia. He published from this field a number of observations that attracted attention and procured for him in 1902 the chair of internal medicine at the University of Groningen. Nine years later he was called to the University of Strasbourg. In 1914 he accepted a post in Vienna as the successor of von Noorden, where he took charge of the first clinic and transformed it into a European center for cardiac research. The "Wenckebach Klinik" soon acquired an international reputation. His studies on arrhythmia, angina pectoris, "Wenckebach's bundle," "thorax piriformis Wenckebach" and "heart changes in beriberi," which he carried on in Batavia under a commission from the government of the Netherlands, established his fame on a firm basis. At the age of 65 he resigned his post as clinical teacher to do research exclusively.

Death of Schlesinger

Prof. Dr. Hermann Schlesinger, an eminent scientist and a great patron of art, has died, aged 67. Schlesinger was early recognized as a physician of unusual ability. His career has been brilliant. Nothagel, who at that time (1890-1900) was an authority in internal medicine, summoned him to Vienna as first assistant in his clinic. At this time he had begun his studies on syringomyelia. He devoted himself also to the study of tetany; described the syphilitic disorders of the vascular system and made researches on the pathology of tuberculosis. As head of a large department of the Vienna General Hospital, he founded what he termed a "Lehr- und Heil-Schule," which, at the time of the medical nihilism in therapy, gave a definite trend to thought. From this research center came a work that is still regarded as authoritative: "The Diseases of Old Age." During the war he established a large institute for the treatment of pulmonary tuberculosis, which is still functioning. In addition to his activity as scientist, teacher and physician he found time and leisure, as a patron of art, to found the Theatermuseum. In order that his work might not be left unsponsored, Docent Dr. Holler, a pupil and assistant of Professor Ortner, has been appointed successor to Schlesinger.

Marriages

THOMAS FORD HUEY JR., Anniston, Ala., to Miss Sybil Parrish Flowers of Durham, N. C., April 21.

KENNETH HERBERT HAMMOND, Hoopeston, Ill., to Miss Martha Hugus of Gary, Ind., April 27.

VINCENT C. NIPPLE, Midvale, Ohio, to Miss Lucy Schoonover, April 22.

CARL GOLDMARK JR., to Miss Hazel Seligman, both of New York, May 11.

SHELLEY C. DAVIS to Miss Ethel York, both of Atlanta, Ga., May 26.

Deaths

Charles Winfield Pilgrim, New York; Bellevue Hospital Medical College, New York, 1881; member of the Medical Society of the State of New York; member of the American Psychiatric Association; at one time chairman of the State Hospital Commission; past president of the New York Academy of Medicine; superintendent of the Willard (N. Y.) State Hospital, 1889-1893 and the Hudson River State Hospital, Poughkeepsie, 1893-1906 medical superintendent of Dr. MacDonald's House; aged 79; died, May 3, at his home in Central Valley.

John Forest Dickson ● Berkeley, Calif.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1880; member of the American Academy of Ophthalmology and Oto-Laryngology and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; member of the Oregon State Medical Society; emeritus professor of ophthalmology University of Oregon Medical School, Portland; aged 78; died, April 3.

William A. Clark ● Jefferson City, Mo.; Washington University School of Medicine, 1897; past president of the Missouri State Medical Association and the Cole County Medical Society; past president of the state board of health; fellow of the American College of Surgeons; on the staffs of the Masonic Hospital, St. Louis, State Hospital, number 1, Fulton and St. Mary's Hospital, Jefferson City; aged 68; died, April 11, of pneumonia.

Joseph Ellsworth Toot, East Liverpool, Ohio; University of the City of New York Medical Department, 1890; member of the Ohio State Medical Association; formerly on the staff of the East Liverpool City Hospital; aged 72; died, April 13, of angina pectoris, arteriosclerosis and hypertension.

Neil L. Goodrich ● South Haven, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1906; past president of the Kalamazoo Academy of Medicine; on the staff of the City Hospital; aged 53; died suddenly, March 25, in the Blodgett Hospital, Grand Rapids, of coronary thrombosis.

Theodore Parker Simpson ● Beaver Falls, Pa.; Bellevue Hospital Medical College, New York, 1877; fellow of the American College of Surgeons; member of the surgical staff of the Providence Hospital, Beaver Falls and the Beaver Valley General Hospital, New Brighton; aged 77; died, March 5.

Lawrence Boykin Hudson ● Hatticsburg, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1907; fellow of the American College of Surgeons; on the staff of the Methodist Hospital; aged 51; was accidentally shot and killed, April 18, while hunting in the woods.

Charles Mills Herald, Elyria, Ohio; Western Reserve University School of Medicine, Cleveland, 1916; fellow of the American College of Surgeons; on the staff of the Elyria Clinic and Elyria Memorial Hospital; aged 46; was found dead in his office, April 19, of heart disease.

James Edward Dickinson, Harrisburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1899; for many years president of the city board of health; formerly member of the state legislature; on the staff of the Harrisburg Hospital; aged 58; died, March 12, of uremia.

Fred Hann Carver, Waitsburg, Wash.; Medical Department of Washington University, 1901; member of the Washington State Medical Association; aged 56; died, February 28, of injuries received when his automobile plunged off the highway, presumably while he was asleep.

William Latane Varn, South Hill, Va.; Medical College of Virginia, Richmond, 1915; member of the Medical Society of Virginia; past president of the Mecklenberg County Medical Society; aged 42; died, March 21, in the Richmond (Va.) Hospital, of streptococcic septicemia.

R. E. Thompson, Inman, S. C.; Atlanta (Ga.) Medical College, 1875; member of the South Carolina Medical Association; formerly member of the state legislature; aged 84; died, March 9, in a hospital at Spartanburg, of arterial hypertension and cerebral hemorrhage.

Walter Glenn Graham, Pittsburgh; University of Pittsburgh School of Medicine, 1911; member of the Medical Society of the State of Pennsylvania; aged 50; died, March 19, in the Passavant Hospital, of heart disease during nephrectomy performed under spinal anesthesia.

Addison Eugene Elliott ● San Diego, Calif.; Rush Medical College, Chicago, 1908; fellow of the American College of Physicians; member of the American Roentgen Ray Society

and the Radiological Society of North America; aged 57; died, April 9, of heart disease.

Robert Daniel Tucker, Powhatan, Va.; Medical Department of Columbian University, Washington, D. C., 1892; member of the Medical Society of Virginia; president of the Powhatan County Medical Society; aged 73; died, March 13, of heart disease.

Lauren Eugene Flickinger, Canton, Ohio; Western Reserve University Medical Department, Cleveland, 1892; member of the Ohio State Medical Association; on the staff of the Aultman Hospital; aged 65; died, March 25, of cerebral hemorrhage.

Joseph Arthur Valenta ● Cedar Rapids, Iowa; State University of Iowa College of Medicine, Iowa City, 1896; aged 63; formerly on the staffs of the St. Luke's Methodist Hospital and Mercy Hospital, where he died, March 17, of mitral stenosis and myocarditis.

Burton N. Clark ● Oshkosh, Wis.; Rush Medical College, Chicago, 1894; past president of the Winnebago County Medical Society; aged 66; on the staffs of St. Mary's Hospital and the Mercy Hospital, where he died, April 18, of carcinoma of the bladder.

James Edmund Dorcey, Boston; Harvard University Medical School, Boston, 1878; member of the Massachusetts Medical Society; aged 80; died, March 13, in the Massachusetts General Hospital, of cerebral thrombosis and arteriosclerosis.

Eli Slifer Walls ● Pittsburgh; University of Pennsylvania School of Medicine, Philadelphia, 1909; fellow of the American College of Surgeons; member of the visiting staff of St. Francis Hospital; aged 52; died, March 28, of coronary occlusion.

Kittie Plummer Gray, Portland, Ore.; University of Oregon Medical School, Portland, 1900; member of the Oregon State Medical Society; aged 69; died, March 27, in the Good Samaritan Hospital of cerebral hemorrhage and arteriosclerosis.

Blanche Edith Webber ● Chicago; Harvey Medical College, Chicago, 1902; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; aged 67; died, April 18, of coronary thrombosis.

Julian Hiland Dewey ● Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1891; fellow of the American College of Surgeons; ophthalmic surgeon to St. Francis Hospital, Trenton; aged 66; died, March 30.

Charles William White, Covington, Ky.; Hospital College of Medicine, Louisville, 1894; at one time health officer of Covington; formerly on the staff of the Booth Memorial Hospital; aged 62; died, March 13, of myocarditis.

Eddie Timothy Hollingsworth ● Goldsboro, N. C.; North Carolina Medical College, Charlotte, 1912; formerly member of the state board of health; on the staff of the Goldsboro Hospital; aged 46; died, May 7, of angina pectoris.

Charles Eugene Chappell, Marne, Mich.; University of Michigan Medical School, Ann Arbor, 1885; formerly member of the board of education; aged 79; died, April 7, of cerebral hemorrhage, myocarditis and arteriosclerosis.

Orley Morton Waters, East St. Louis, Ill.; St. Louis University School of Medicine, 1920; member of the Illinois State Medical Society; aged 50; on the staff of the Christian Welfare Hospital, where he died, March 14.

Andrew James Ames, Fargo, N. D.; University of Illinois College of Medicine, Chicago, 1901; on the staff of the Veterans' Administration Facility for many years; aged 68; died, April 12, of cerebral hemorrhage.

Daniel Hurst Carns, Albuquerque, N. M.; Western Pennsylvania Medical College, Pittsburgh, 1894; member of the New Mexico Medical Society; aged 64; died, March 30, of angina pectoris and diabetes mellitus.

James Rufus Liverman, San Bernardino, Calif.; University of Arkansas School of Medicine, Little Rock, 1900; aged 68; died, March 16, of hypostatic pneumonia, injury to the head and fractured forearm.

Stephen L. White, Seymour, Mo.; St. Louis College of Physicians and Surgeons, 1883; also a minister; aged 73; died, March 13, in Rochester, Minn., of hypertrophy of the prostate and pyelonephritis.

Joel Audubon Webb, Providence, R. I.; University of the City of New York Medical Department, 1889; member of the Rhode Island Medical Society; aged 79; died, February 20, of cerebral hemorrhage.

William H. Stiles, San Bernardino, Calif.; Hahnemann Medical College and Hospital, Chicago, 1878; member of the California Medical Association; aged 80; died, March 25, of cerebral hemorrhage.

James T. Hanson, Gallipolis, Ohio; Medical College of Ohio, Cincinnati, 1874; county coroner; aged 83; died, April 20, in the Holzer Hospital, of a skull fracture received in an automobile accident.

Perry Lawson Ferry, Akron, Ind.; Cornell University Medical College, New York, 1904; served during the World War; aged 54; died March 30, in McDonald Hospital, Warsaw, of pneumonia.

Lillian Atkins Moore Clark, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1923; member of the Medical Society of the State of Pennsylvania; aged 36; died, March 21.

Willis Monroe Metzler, Vanlue, Ohio; Starling Medical College, Columbus, 1895; member of the Ohio State Medical Association; aged 67; died, March 12, in the Home and Hospital, Findlay.

Edwin Daniel Townsend, Eastland, Texas (licensed in Texas under the Act of 1907); member of the State Medical Association of Texas; aged 72; died, March 20, of cerebral hemorrhage.

Charles Clifford Bennett, Smith Center, Kan.; University Medical College of Kansas City, 1913; member of the Kansas Medical Society; aged 43; died, April 26, of a self inflicted bullet wound.

Charles Franklin Keyser, Cuyahoga Falls, Ohio; College of Physicians and Surgeons, Baltimore, 1886; member of the Medical Society of the State of Pennsylvania; aged 73; died, March 10.

Charles Ernest Tran, Kamsack, Sask.; Western University Faculty of Medicine, London, Ont., Canada, 1912; served during the World War; formerly mayor; aged 52; died, March 23.

Achille Besner, Valleyfield, Que., Canada; School of Medicine and Surgery of Montreal, 1897; coroner for the district of Beauharnois; aged 62; died suddenly, February 15, of angina pectoris.

Marvin Sumter Witt, Manchester, Ga.; Atlanta Medical College, 1914; member of the Medical Association of Georgia; aged 48; died, March 3, in the Piedmont Hospital, Atlanta.

Charles Cogley Marshall, Aurora, Ind.; Medical College of Ohio, Cincinnati, 1897; served during the World War; aged 60; died, March 12, in the Dillsboro (Ind.) Sanitarium.

Herman Lee Hildreth, Julian, Calif.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1900; member of the California Medical Association; aged 58; died, March 7.

William Peyton Barton ● Portland, Ore.; Tulane University of Louisiana Medical Department, New Orleans, 1904; aged 53; died, April 27, of a self inflicted bullet wound.

David Ber Domb, San Francisco; Indiana University School of Medicine, Indianapolis, 1909; aged 53; died, March 24, in the Stanford University Hospital, of myocarditis.

Clarence Hyde Saunders, Chase City, Va.; College of Physicians and Surgeons, Baltimore, 1891; member of the Medical Society of Virginia; aged 63; died, March 14.

William Edward Cook ● Pageton, W. Va.; Medical College of Virginia, Richmond, 1901; served during the World War; aged 63; died, May 5, of chronic myocarditis.

Leo Ervin Oscar Evens, Hartford, Conn.; St. Louis College of Physicians and Surgeons, 1897; member of the Iowa State Medical Society; aged 61; died, March 26.

James D. Harlan, Fairfield, Ill.; Missouri Medical College, St. Louis, 1890; member of the Illinois State Medical Society; aged 72; died, April 28, of organic heart disease.

Levi Daniel Johnson, Whittier, Calif.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1888; Atlanta (Ga.) Medical College, 1897; aged 78; died, March 3.

William Black, Winnipeg, Manit., Canada; Manitoba Medical College, Winnipeg, 1903; served during the World War; aged 53; died, April 3, of cerebral hemorrhage.

John B. Deal, Crockett, Texas; Baylor University College of Medicine, Dallas, 1913; member of the State Medical Association of Texas; aged 46; died, March 2.

F. R. Wallace, Cordele, Ga.; University of Georgia Medical Department, Augusta, 1879; member of the Medical Association of Georgia; aged 77; died, January 13.

Allen Earl Gray, Marysville, Calif.; Cooper Medical College, San Francisco, 1911; member of the California Medical Association; aged 46; died, March 16.

Isaac Adal McCarty ● Los Angeles; St. Louis College of Physicians and Surgeons, 1883; aged 74; died, March 23, of angina pectoris and arteriosclerosis.

George W. Darling, Portsmouth, Ohio; Hospital College of Medicine, Louisville, Ky., 1885; formerly postmaster of Wellston; aged 87; died, March 16.

Orville Augustus Rhodes, Salem, Ohio; College of Physicians and Surgeons, Baltimore, 1882; aged 72; died, March 16, in the City Hospital, of uremia.

Griswald Bragaw, Milford, Conn.; Bellevue Hospital Medical College, New York, 1897; aged 68; died, Dec. 26, 1933, of adenoma of the prostate.

David De Tar, Winslow, Ind. (licensed in Indiana in 1897); Civil War veteran; aged 88; died, April 20, of lobar pneumonia and chronic endocarditis.

Thomas Henry McDonough, Frenchtown, N. J.; Medical School of Maine, Portland, 1898; aged 59; died, March 29, of carcinoma of the esophagus.

Henry William Kauffold ● Frankenmuth, Mich.; Vanderbilt University School of Medicine, Nashville, Tenn., 1917; aged 39; died, March 18.

Felix Cornu, Buckingham, Que., Canada; Victoria University Medical Department, Coburg, 1887; aged 68; died, January 29, in Montreal.

Thomas Dowe Allen, Shaw, Miss. (licensed, Mississippi in 1903); aged 57; died, March 29, in the King's Daughters' Hospital, Greenville.

Peter D. Arbogast, Morgantown, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1901; aged 67; died, March 31.

James Oswill Nicholson, Lead Hill, Ark.; Memphis (Tenn.) Hospital Medical College, 1900; aged 58; was found dead, February 27.

Frederick Charles Delahey, Pembroke, Ont., Canada; University of Toronto Faculty of Medicine, 1895; aged 63; died, February 8.

Francis Henry Bermingham, Kingston, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1892; aged 63; died, May 1.

Henry Powell Halsted, Perry, Mich.; University of Michigan Medical School, Ann Arbor, 1877; aged 83; died, April 11, of senility.

J. Esdras Beaudet, Deschaillons, Que., Canada; Laval University Faculty of Medicine, Quebec, 1899; aged 61; died, February 28.

John T. Smith, Georgetown, Tenn.; University of the South Medical Department, Sewanee, 1899; aged 65; died, March 17.

Thomas Wright Reagan, Union, Miss.; University of Nashville (Tenn.) Medical Department, 1908; aged 49; died, March 19.

Whitley Gray Hendrix, New London, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1871; aged 91; died in March.

Russell Bayly, New York; St. Louis Medical College, 1877; aged 81; died, April 22, in the Bellevue Hospital, of arteriosclerosis.

Henry Schumacher, Walcott, Iowa; State University of Iowa College of Medicine, Iowa City, 1882; aged 77; died, March 4.

Edward Henry Wood, Riverside, Calif.; College of Physicians and Surgeons, Baltimore, 1894; aged 65; died, March 21.

John J. Livingston, Spencer, Ind.; Indiana Eclectic Medical College, Indianapolis, 1881; aged 78; died, February 26.

Charles Willard Sanders ● Northwood, Iowa; Rush Medical College, Chicago, 1884; aged 74; died, March 27.

Judson Arthur Holland, Hayward, Calif.; Cooper Medical College, San Francisco, 1894; aged 75; died, March 1.

Lelia Latta, Chula Vista, Calif.; Woman's Hospital Medical College, Chicago, 1888; aged 77; died, March 11.

James Peter Quirk, Perry, Fla.; Rush Medical College, Chicago, 1891; aged 65; died, April 6, of heart disease.

Thomas Winfield Herron, Little York, Ind. (licensed, Indiana in 1897); aged 84; died, March 16.

Robert C. Richey, Powell, Ohio; Columbus Medical College, 1882; aged 78; died, March 26.

Miles B. Cook, Angola, N. Y.; Cleveland Medical College, 1877; aged 79; died, March 14.

Bureau of Investigation

SOME NOSTRUMS IN RETROSPECT

Condensed Reports on Widely-Advertised "Patent Medicines"

The Bureau of Investigation of the American Medical Association receives thousands of inquiries every year from physicians and laymen asking for information on "patent medicines" and quacks. The chief work of the Bureau consists in answering these inquiries. Naturally, the bulk of the questions that come in deal with nostrums that loom large in the public eye at the time of the inquiry. The material that follows represents condensed restatements of more extensive articles that have been published in the past in this department of THE JOURNAL dealing with preparations about which the Bureau still receives many inquiries. It is reasonable to believe that for every letter that the Bureau gets from a physician or layman about an advertised "patent medicine," there are probably a dozen laymen and an equal number of physicians who are interested in getting such information but do not take either the time or the trouble to write. It is for this reason that the following material in a greatly abbreviated form re-states facts previously presented on the products named:

Pfunder's Stomach Tablets.—This was the subject of an article that was published by the Bureau of Investigation in THE JOURNAL, Dec. 1, 1928. It was brought out in that article that Frederick H. Pfunder of Minneapolis put out what was called "Pfunder's Stomach Tablets, a Remedy for Ulcers of the Stomach." A letter had been written to Mr. Pfunder in 1926, asking him whether he was willing to give any information regarding the medicinal ingredients of his "patent medicine." He replied that he was willing to give any information "except to reveal the formula"—that is, the only information that the public had a moral right to demand he was unwilling to give. Because of this refusal to throw any light on the composition of his "Remedy for Ulcers of the Stomach," the Bureau of Investigation asked the A. M. A. Chemical Laboratory to analyze Mr. Pfunder's nostrum. As a result of their analysis the chemists reported that each daily dose (3 tablets) of the preparation would be equivalent to:

Bismuth subnitrate	33 grains
Magnesium oxide	25 grains
Baking soda	27 grains

Uvursin.—Uvursin is put out by the John J. Fulton Company of San Francisco and is sold as a remedy for diabetes. According to some of the advertising, Uvursin is said to "combine the desirable principles" of chimaphila (pipissewa), eupatorium (boneset), pareira, taraxacum (dandelion), uva ursi (bearberry), jublans (butternut bark), lappa (burdock root), inula (elecampane), eriodictyon (yerba santa), zea mays (corn silk), with some senna, potassium nitrate and sodium borate. In other words, the product is essentially a mixture of herbs, most of which have long been discarded by scientific medicine and nearly all of which have mild diuretic action. In this respect Uvursin runs true to the orthodox diabetes-cure quackery. Give the diabetic a kidney stimulant so that more urine will be passed, and the patient will be gratified to find that he apparently has a lessened amount of sugar in the urine. The facts are, of course, that there is no real diminution in sugar, but because of the increase in fluid output, any individual specimen of urine will naturally have a smaller proportion of sugar in it. Uvursin is apparently the same product that the John J. Fulton Company used to put out under the name of "Fulton's Compound B 2." This preparation was declared by the federal authorities to be worthless as a cure for diabetes, and the courts held that the implied claim that it would cure diabetes was false and fraudulent. The Fulton concern attempted to evade the federal law by declaring that they themselves did not make the claims for curative effect, but that they merely quoted testimonials stating, in effect, that it was a cure for diabetes. One federal judge on the Pacific Coast upheld this preposterous thesis, but the Circuit Court of Appeals reversed that judge's decision. The case was then remanded

to another United States District Court and judgment was obtained against the Fulton concern. A somewhat lengthy and detailed article on the Fulton Compound was published by the Bureau of Investigation in THE JOURNAL, Jan. 29, 1916. In this article case after case was cited of individuals who had given testimonials to the Fulton Company and which that company printed, indicating that the stuff had cured diabetes. It was shown that the patients were dead, having died of the very disease of which they had claimed to be cured. The article has been reprinted in the pamphlet "Nostrums for Kidney Disease and Diabetes" (15c). Since the change of name has been made, the Fulton concern has widely circularized the medical profession.

Renton's Hydrocin Tablets.—The Renton Company of Pasadena, Calif., has for some time put out an alleged rheumatism cure for which it used to make the claim: "What insulin is doing for diabetes, Renton's Rheumatic Tablets are doing for arthritis, neuritis and rheumatism." At that time the "patent medicine" was known as Renton's Rheumatic Tablets. Apparently pressure brought to bear by the National Food and Drug officials caused them to change the title to Renton's Hydrocin Tablets. Extensive analytical work done by the A. M. A. Chemical Laboratory brought out that the tablets were essentially five-grain cinchophen tablets, with a small amount of what appeared to be tetra-ethyl-ammonium hydroxide. In the Bureau of Investigation's original article on this product, published Jan. 17, 1931, attention was called to the fact that the public, in purchasing Renton's Hydrocin Tablets, was paying an exorbitant price for cinchophen and in ignorance of the fact that it was getting cinchophen. Further, it expressed the opinion that it was little less than criminal that irresponsible "patent medicine" exploiters should be permitted to put so potent a drug in secret mixtures with no warning, especially as the number of cases of acute yellow atrophy of the liver following the continued use of cinchophen was increasing. Since the article was published, there have been a number of cases of poisoning reported following the use of the Renton nostrum, including the deaths of six people who had taken the Hydrocin Tablets, and in all of them autopsy disclosed symptoms of cinchophen poisoning.

Viavi.—A piece of quackery that has been exploited throughout the United States for many years, known as "Viavi," was the subject of an extended article that appeared many years ago (April, 1907) in the *California State Journal of Medicine*. The Viavi Company is said to have been founded by two brothers, H. and H. E. Law of San Francisco. Viavi is not the name of a single preparation, but a generic name given to a long list of nostrums put out by the Viavi Company. Practically all of the preparations are for the alleged treatment of diseases peculiar to women. There are "Viavi Capsules," "Viavi Cerate," "Viavi Liquid," etc. So far as analyses have been made of them, the basis of most of the Viavi preparations seems to be extract of hydrastis (golden seal). The method of sale of the Viavi preparations is not that of the usual "patent medicine." They are not handled by druggists and they are apparently not sold on the mail-order plan. The business seems to be carried on by means of agents. However, there has been one reported case of misbranding under the National Food and Drugs Act, that described in Notice of Judgment No. 19466, issued December, 1932. Viavi Liquid and Viavi Cerate were both included in this prosecution, which was based on the fact that the therapeutic claims were false and fraudulent. One of the methods that have been reported as used by Viavi representatives in order to make "contacts" was that of getting well-meaning church women and unsophisticated parsons to act as pawns in the game of quackery. Cards would be sent out by the Ladies Aid Society of a given church, inviting women to attend an illustrated talk on the "Science of True Living," to be given "under the auspices of the Educational Department" of some branch of the Viavi concern. The bait was the promise that the Viavi agent would pay the Ladies Aid Society 10 cents for every woman who attended the "lecture." What the Viavi business sometimes does was well described in a brief article that was published in THE JOURNAL, Dec. 3, 1927. A well-known physician in the middle west reported at that time that he had been called to see a twenty-seven-year-old woman whom he had known for many years, as he had been the attending physician of the family. He was called suddenly because the woman had a severe uterine hemorrhage. On examination he found unmistakable evidence of cervical carcinoma of several months' standing. He was told that the young woman some four months previously had begun to lose weight, had severe pelvic pains, discharge, etc., and her husband had told her to go to the family physician. A neighbor, however, advised her to see the local Viavi agent first, which she did. From the agent she got two bottles of Viavi, one costing $9.50 and the other $3.50. The Viavi agent sent the woman's "symptom blank" to the Viavi branch headquarters, and the mail-order diagnosis was made that the condition was probably a "cyst" which would require several months' Viavi treatment to absorb! As the family physician wrote: "Four months ago there might have been a chance to save the life of this young mother; today the case is practically hopeless."

R. M. B. Prescription.—This preparation, put out by the so-called R. M. B. Laboratories of Seattle, Wash., used to be sold under the name "Asthma-Sera" and was advertised under the claim that it "ends asthma and hay fever forever." The Bureau of Investigation published an article on the subject in THE JOURNAL of Feb. 11, 1928. The product was found to have the composition that nine out of ten "patent medicines" for asthma do have, namely, iodides. The A. M. A. Chemical Laboratory, which analyzed the stuff under its earlier name at the request of the Bureau of Investigation, reported that the daily dose of the nostrum (4 teaspoonfuls) had the equivalent of 23.6 grains of strontium iodide, 1.16 grains of sodium iodide, and a laxative. This commonplace mixture was sold under the claim that it was a new treatment discovered by a French physician and never before used in either Canada or the United States in the combination found.

Free Breath.—This preparation, sold as an alleged treatment for asthma and hay fever, is put out by the O. W. Dean Company of Benton Harbor, Mich., which had earlier been known as the Benton Asthma Remedy Company. Free Breath was described as the "World's Wonder Treatment for Asthma, Bronchitis, Hay Fever, and Catarrh of the Mucous Membranes." O. W. Dean, president of the company, was, if he is not still, an undertaker. The details of this piece of mail-order quackerly were set forth in an article published by the Bureau of Investigation in THE JOURNAL, Nov. 27, 1926. At that time Free Breath was a liquid. It is now apparently sold in solid form, which should allow greater profits because of the lessened shipping costs. Free Breath was analyzed by the A. M. A. Chemical Laboratory, which reported that the stuff contained the equivalent approximately of 21 grains of potassium iodide and 24 minims of solution of potassium arsenite (Fowler's solution) to the fluid ounce. This would mean that each dose was equivalent to 2½ grains of potassium iodide and 3 drops of Fowler's solution.

Renesol.—Renesol was one of several names used by Charles Goldblatt and Maurice E. Goldberg, who sold phenobarbital (luminal) at an exorbitant price as cures for epilepsy. The Goldblatt-Goldberg combination operated such mail-order fakes as the Renesol Laboratories, Inc., the Nurosol Laboratories, Inc., the Nurone Laboratories, Inc., the Vitosol Corporation and the Phenoleptol Company, all putting out "patent medicines" for the alleged treatment of epilepsy and all of them essentially phenolbarbital. An extended article on this variously named piece of quackery was published by the Bureau of Investigation in THE JOURNAL, Feb. 20, 1932. The analysis made by the A. M. A. Chemical Laboratory disclosed that each capsule of Renesol contained approximately one grain of phenobarbital, to which had been added a small quantity of baking soda.

Haines' Golden Treatment.—This is one of those cruel humbugs exploited as a cure for the liquor habit. It was the subject of an article by the Bureau of Investigation in THE JOURNAL, Oct. 27, 1917. It was brought out in that article that prior to the passage of the present Food and Drugs Act, when lying on the trade package was only immoral instead of expensive, the stuff was labeled "Golden Specific." The preparation

is one of the numerous fakes exploited as cures for alcoholism which can be given secretly, curing the alcoholic in spite of himself. Not only is the claim that the stuff can be administered and will cure the drunkard "without his knowledge" false, but it is a viciously cowardly falsehood, in that it deceives those who, in the very nature of the case, are not in a position to protest when the deception becomes obvious. An analysis made in the A. M. A. Chemical Laboratory was also part of the article already referred to. It was declared that Haines' Golden Treatment was composed essentially of milk sugar, starch, red pepper, and a minute amount of ipecac!

Frontier Asthma Remedy.—This is a mail-order concern that is apparently conducted by one George H. Calkins, M.D., who also seems to have as a side-line an alleged mail-order remedy for piles. A brief note on the Frontier Asthma Remedy was published in *Hygeia* for June, 1929, in an article "Hay-Fever and Asthma Quackery." The claim is made for the Frontier remedy that individual treatment is given to the mail-order patients. While there is reason to believe that there may be some variations in the composition of the mixtures sent out to different persons, the essential ingredient seems to be iodides. Every analysis of which we have record shows the presence of these drugs. An analysis made by the A. M. A. Chemical Laboratory in 1916 showed that each dose of the Frontier nostrum examined contained the equivalent of about 5 grains of potassium iodide, together with ¾ of a grain of caffeine and 1/60 of a grain of arsenous oxide. In four analyses reported by the Chemical Laboratory of the City of Cleveland in 1919, all specimens were found to contain iodides. The state chemists of Connecticut, in a report issued in May, 1927, stated that a sample of the Frontier remedy, when analyzed, was found to contain iodides, ammonia and caffeine. In other words, the Frontier product, like nine-tenths of the nostrums sold either as "patent medicines" through the retail trade or as mail-order remedies for asthma and hay fever, depends for its action on the iodides, whose value—and limitations—in the treatment of certain forms of asthma have been known for years.

Midol.—This "patent medicine" has been advertised for some time as a "pain-killer" for use at the time of the menstrual periods. In the past emphasis has been laid on the danger of taking acetanilid or acetphenetidin, and the public is assured that Midol contains neither of these substances. Midol was analyzed in the A. M. A. Chemical Laboratory in 1912. At that time the chemists reported that a Midol tablet averaged about 6½ grains, of which a little less than ⅓ of a grain was talc, about 1 grain starch, and the balance of the tablet mainly amidopyrine with a small amount of caffeine. It was concluded that Midol depends for whatever therapeutic action it has essentially on the amidopyrine. The increasing evidence of a possible relationship between the continued use of amidopyrine and the production of granulopenia, emphasizes the danger of the indiscriminate use of "patent medicines" containing amidopyrine.

Crazy Crystals.—This product has been claimed to be the mineral constituents that are obtained by evaporating a water known as "Crazy Mineral Water." The product Crazy Mineral Water has been on the market for many years and has been declared misbranded (because of fraudulent curative claims) or adulterated (because it contained filth) at different times in the past. The exploiters of Crazy Mineral Water have published what purported to be the ingredients of the water, and while they have varied, they all agree in showing that the chief mineral ingredient is sodium sulphate (Glauber's salt). Crazy Crystals was the subject of an article by the Bureau of Investigation published in THE JOURNAL of March 11, 1933. It was there declared, in summing up the matter, that a $1.50 package of Crazy Crystals could accomplish nothing that could not be accomplished equally well with a few cents' worth of Glauber's salt. It was further stated that the attempt in the radio advertising of Crazy Crystals to lead the public to believe that the preparation was not a drug was but playing tricks with the English language, for Crazy Crystals is just as much a drug as Glauber's salt or any other saline laxative sold for the treatment of human ailments.

Correspondence

"DERMAL MANIFESTATIONS OF VITAMIN A DEFICIENCY"

To the Editor:—I have read with interest the editorial on "Dermal Manifestations of Vitamin A Deficiency," which appeared in THE JOURNAL, March 10. In connection with this I should like to refer you to an article by myself and Dr. C. K. Hu on "Cutaneous Lesions Associated with a Deficiency of Vitamin A in Man," which was published in the *Archives of Internal Medicine* **49**:507 (Sept.) 1931. I think you will find that Dr. Loewenthal's observations in general are similar to those made in Peiping.

CHESTER N. FRAZIER, M.D.,
Peiping Union Medical College,
Peiping, China.

SUPRARENALECTOMY IN ESSENTIAL HYPERTENSION

To the Editor:—In THE JOURNAL, April 7, page 1118, the results of suprarenalectomy in essential hypertension are reported. It seems to me that the therapeutic importance of this paper is lost by the failure of the authors to control adequately their studies of the blood pressure. Thus, patient 1 entered their clinic apparently for the first time, Oct. 7, 1933, and on October 17, after ten days' observation, was operated on. Such a brief period of observation is of little value in determining the effect of subsequent therapy. Weeks and even months of careful observation under standard conditions are needed in any study of essential hypertension. The truth of this statement is illustrated by the following case:

M. R., aged 55, was first seen with a blood pressure of 240 systolic, 130 diastolic, which dropped at the end of twenty minutes' rest in a chair to 190 systolic, 120 diastolic. The patient was seen at weekly intervals, during which time no medication was given. The drop in blood pressure that occurred during these weeks of observation without treatment is indicated in the accompanying table.

Date	Initial Blood Pressure	After 10 Minutes' Rest	After 20 Minutes' Rest
9-2-33	240/130	210/120	190/120
9-9-33	208/120	180/110	194/120
9-16-33	180/110	160/94	150/94
9-23-33	184/108	164/98	160/100
9-30-33	200/110	164/108	160/100
10-7-33	170/98	158/90	152/90

Such an example is the rule rather than the exception, when a hypertensive patient is seen for the first time in the office or clinic.

DAVID AYMAN, M.D., Boston.

[NOTE.—The letter was referred to Dr. Joseph L. DeCourcy, who writes:]

To the Editor:—Let me advise that it has been the policy of my associates and myself to have these patients under observation in the hospital for one week before operating. This was done with patient 1 and three hourly readings were made. During this time the diastolic pressure did not go below 140.

To date we have operated only in the so-called malignant type of hypertensive case and it has been our experience that, though the systolic pressure varies considerably, the diastolic does not go below 130 or 140 even with rest in bed.

It is also a fact that patient 1, as stated in the original article, had been in bed two months before operation and during this time the diastolic pressure did not go below 140.

We feel confident that our results will improve if we can operate on these patients early, before vascular changes have taken place.

At present we are trying to determine the effect of sclerosis present by examination of the eyeground and will make a detailed report later.

Joseph L. DeCourcy, M.D., Cincinnati.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INHALATION OF OXYGEN IN PNEUMONIA

To the Editor:—In Queries and Minor Notes in The Journal, January 27, page 311, there was consideration of the treatment of pneumonia at home. Reference was made to the use of oxygen by the use of a catheter placed in the nostril. Just how these arrangements are to be carried out and the details of the valves and other mechanism are a bit hard to figure out. Can you direct me to some information that will be able to enlighten me? Some manufacturer of such apparatus would be able to explain the details, but I do not know of any, or the address. Should you happen to know of any one using this form of oxygen medication, I shall be glad to get his name and address.

Mont.

Answer.—An increase in the concentration of oxygen in the upper air passages, and consequently in the lungs, may be accomplished by leading oxygen into the nares by means of a

Fig. 1.—The method of using oxygen with a Bullowa catheter in an adult. The Air Reduction Company's variable orifice meter and "flow-back" bottle.

catheter. Two types of catheter are employed: (1) metal catheters, which may have rubber tips or extensions, and (2) soft rubber tubing. Rubber catheters have been effectively employed by Barach, Barker, Waters and others and can be obtained in any reliable surgical supply house. Metal catheters are usually Y-tubes, shaped so as to fit just inside the nostrils. They should be made of malleable brass so as to permit bending. Several catheters of different kinds should be at hand because of the variation in facial contours. The Bullowa type, with band plate adjustable on the stem, is made by Frederick L. Noble of 2136 Seventh Avenue, New York City. The Connel and the Sanford types are made by the Foregger Company, Inc., 55 West Forty-Second Street, New York City.

Soft catheters may be attached to the bulbous ends of the metal catheter or to a glass tube connected with the oxygen supply. The ordinary urethral catheter No. 10, French, may be employed, provided holes are cut or punched at intervals of one-half inch so as to prevent a localized blast of air. The soft rubber tube or tubes may be introduced 1½ inches and either rest on the floor of nose or extend to the oropharynx; in that case the length may be determined as the distance from the plane of the upper lip to the external auditory meatus. The catheters are kept in place with a band about the head or with an adhesive strip.

If dry oxygen were admitted to the nostrils, the mucous membranes would be dried and soon would become congested

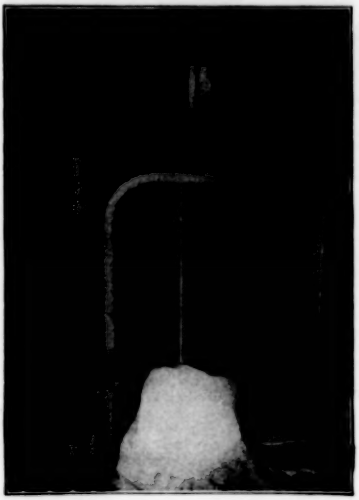

Fig. 2.—The soft rubber catheter in a child.

and ultimately inflamed, and the patient would reject the treatment. Accordingly, the oxygen is passed through several inches of water in a wash bottle. The Burdick oxygen humidifier, manufactured by the Burdick Corporation of Milton, Wis.,

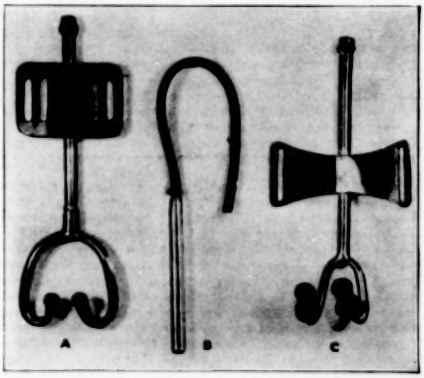

Fig. 3.—*A*, the Bullowa catheter; *B*, soft rubber catheter with perforations; *C*, the Connel catheter with soft rubber tips.

appears to be a satisfactory instrument for this purpose. An oxygen flow rate of 4 liters per minute for adults, and from 1.5 to 2 liters per minute for children, has proved satisfactory and will give a pharyngeal oxygen of about 27 per cent, or a 50 per cent increase in the concentration usually found in the pharynx.

Regulators for the clinical delivery of oxygen are made by a number of manufacturers and may be obtained from local dealers in industrial oxygen or from the surgical instrument dealers. (There is no medical oxygen. The oxygen used in garages for welding is suitable for inhalation and may be purchased from dealers in industrial gases.) The clinical regulators have the delivery gages graduated in liters. A two-stage regulator is desirable because it requires less observation to maintain a constant flow, permits more complete emptying of the oxygen tank, and protects Bourdon tube gages from excessive and sudden pressures.

There are two types of gages:

1. The variable orifice or float gage in which a weight is supported by the flowing gas in a funnel shaped tube. The orifice between wall and weight varies, increasing in the upper portion of the tube. The number of liters flowing when the weight is supported at any given height is indicated on the tube. Should the outlet be obstructed so that less gas is escaping, the weight will fall and the amount flowing will be correctly indicated. The Air Reduction Company, 60 East Forty-Second Street, New York City, makes such a gage.

2. The fixed orifice gage (Venturi principle). The amount of gas escaping through a given sized orifice is dependent on the pressure of the gas, so that a pressure gage may be calibrated in liters per minute to indicate the flow. If the flow of gas is free, these gages may be accurate; but if the flow is obstructed, the gage will indicate the same or a higher flow rate than is actually flowing. Sometimes the capillary opening becomes obstructed and this will impede the flow of oxygen and require a change in the calibration. The Bourdon tube may be sprung by sudden, excessive pressure, especially in one-stage regulators. The ordinary dial gages contain Bourdon tubes; these are curved tubes of metal which straighten when the pressure increases within them. By means of a ratchet attached to the end of the tube, the indicator on the dial is moved.

A recent production of the Linde Air Products Company is the Linde oxygen therapy regulator, type R-51, which has two stages of expansion and has been accepted by the Council on Physical Therapy of the American Medical Association.

In order to avoid breakage of the regulators, the tanks of oxygen should be strapped to the bed post so that delirious patients or persons moving about may not overturn them.

TREATMENT OF CERVICITIS

To the Editor:—Kindly state what treatment could be applied in a case of chronic cervicitis, the patient having a yellow, watery, copious discharge, of foul odor, of three years' duration. The patient is single, 26 years of age, a bookkeeper and of nice reputation. She had a cervical cauterization (electrical, apparently) about a year ago, with no alleviation of the leukorrhea. She has had numerous treatments by various doctors and she is quite hopeless as to cure as far as she is concerned.

AARON I. LEVIS, M.D., Madison, N. Y.

ANSWER.—From the description given, it is almost certain that this patient's annoying discharge is not due to a cervicitis, even though the latter may still be present, but to trichomonas vaginalis. This belief is supported by the clinical symptoms enumerated and the persistence of the discharge in spite of various forms of treatment. Most likely the patient may be treated just as any married woman, because with all the manipulation she has had the hymen has undoubtedly been ruptured and the vagina stretched.

In order to make a diagnosis of Trichomonas vaginalis, it is necessary to examine a fresh, unstained drop of the discharge, diluted with a drop of physiologic solution of sodium chloride. Trichomonas is an actively moving paramecium-like organism and easy to detect.

There are many ways of treating a discharge due to this organism, and almost all types of drugs have been used. Thus far, no specific has been found, but immediate relief can be given in most cases with almost any type of treatment, though recurrences are frequent. The treatment outlined by Greenhill (THE JOURNAL, May 30, 1931, p. 1862) is as follows:

The vagina is thoroughly scrubbed with gauze or cotton saturated with tincture of green soap (liniment of soft soap U. S. P.). All the vaginal folds are smoothed out and every part of the mucosa is scrubbed. The scrubbing is one of the most important steps in the treatment, and it is usually persisted in until slight bleeding is noted in the vaginal mucosa. Bleeding generally occurs, because the mucosa in these cases is friable. The soap is washed out with tap water or with mercuric chloride, and the vagina is dried thoroughly. A speculum is inserted into the vagina and hexylresorcinol solution (1:1,000) is instilled into the vagina and on the cervix. A tampon saturated with half or full strength glycerin is then inserted high up into the vaginal vault. A second, dry, tampon is inserted to prevent the escape of glycerin on the patient's clothing. Hexylresorcinol solution (1:1,000) is applied to the vulvar and anal regions and the patient is instructed to remove the tampons after twenty-four hours. The string of the second tampon has a knot tied in it, so that the patient may know that this tampon is to be pulled out first. After removal of the tampons, a douche of tincture of green soap is taken. The treatment outlined is repeated every second day for at least three times. The patient takes a green soap douche on the mornings between treatments but not on the mornings she is to receive a treatment. A douche is not taken on the morning of a treatment because it is desirable to see how much discharge there is and also because hanging drop examinations are made at that time. Treatment is continued until hanging drops on two successive visits fail to show Trichomonas. However, the patient is advised to take a 0.5 per cent lactic acid douche daily for about two weeks after treatment is discontinued. The purpose of the lactic acid douche is to attempt the reestablishment of a normal bacterial flora in the vagina.

A matter of great importance is the cleansing of the anus after a bowel movement. To accomplish the latter most women use an upward sweep toward the vagina and urethra, but this may produce reinfection if the causative organisms come from the rectum. The patients are instructed to use a sweeping motion directed away from the vagina and toward the sacrum. The significance of this method of cleansing the anal region should be impressed on the patient.

Since recurrences of the troublesome discharge occur in a certain proportion of cases, and since these frequently manifest themselves immediately after a menstrual period, it is advisable to reexamine patients just before and just after a menstrual period. If organisms are found, a course of treatments should again be given.

TECHNIC OF MANTOUX TUBERCULIN TEST

To the Editor:—The Mantoux test is being given in the schools at the present time (0.1 mg.) and the following questions have arisen: 1. Will 0.1 mg. light up a childhood type? 2. Will 0.1 mg. light up an adult type otherwise quiescent? 3. Are there any contraindications for the tests in children excepting the adult type? 4. What are the contraindications in an adult? Please omit name.

M.D., Ohio.

ANSWER.—One-tenth milligram of old tuberculin has been administered intracutaneously as the initial dose in diagnostic work by a large number of physicians. Many of them still use this amount as the initial dose in tuberculin testing of both children and adults. If the individual tested is highly allergic, a four plus local reaction may result; that is, a small area of necrosis is produced. This is not serious in any way and occurs so rarely that 0.1 mg. may be considered a safe dose from the standpoint of the local reaction. However, some physicians prefer to use as the initial dose only 0.01 mg., since with this amount one almost never sees a four plus reaction. With 0.1 mg. of tuberculin properly introduced into the layers of the skin there is no constitutional reaction. The tuberculin is absorbed very slowly and is present in such a small amount that it does not light up the childhood type of tuberculosis, nor is there any evidence to show that it lights up an adult type of tuberculosis otherwise quiescent. In children with the adult type of tuberculosis the intracutaneous tuberculin test is not contraindicated, nor is it contraindicated in adults with the adult type of disease.

Apparently a great many physicians have confused the intracutaneous test with the subcutaneous test, which was extensively used for a time but which often did result in constitutional symptoms, such as elevation of temperature, acceleration of pulse, and malaise. Moreover, it sometimes resulted in focal reactions; that is, around the site of the tuberculous focus in a lung there would appear increased shadow on the x-ray film, probably because of collateral inflammation. On auscultation one would occasionally find increase in râles. In patients with tuberculous cervical lymph nodes, large doses of tuberculin administered subcutaneously would result in increased enlargement and even tenderness over the nodes. There is little doubt that tuberculous lesions were sometimes lighted up by subcutaneous administration of tuberculin, owing to the large dose and the rapid absorption. However, from the small dose and the slow absorption by the intracutaneous method one need fear no danger. The occasional coincidence has led some physicians to fear the intracutaneous test. For example: The person who has had the test administered may within a few hours to a day or so develop symptoms, such as elevation of temperature, due to an acute respiratory infection but for which the tuberculin was in no way responsible.

PARALDEHYDE IN RECTAL ANESTHESIA

To the Editor:—In the article on "The Rôle of Pharmacology in the Development of Ideal Anesthesia," by C. D. Leake (THE JOURNAL, January 6), the statement is made that paraldehyde is satisfactory for "rectal narcosis" in place of tribrom-ethanol. Reference was made to Stewart, J. D.: Rectal Paraldehyde Before Operation, *Brit. M. J.* **2**: 1139 (Dec. 24) 1932. Would you give me the technic and dose used according to age and weight? Please omit name and address.

M.D., Oregon.

ANSWER.—Stewart's report, to which reference was made, was based on experience with 500 cases. The patient was given an enema the evening before the operation, and barbital by mouth as a sedative. The next morning an hour and a half before the operation, 0.7 mg. (1/100 grain) of atropine sulphate was administered hypodermically (no morphine), and this was followed by the rectal administration of freshly prepared paraldehyde solution. The latter was approximately 10 per cent in physiologic solution of sodium chloride, which was found to be retained without difficulty if the rectal administration was slow. The adult dose was 8 drachms (32 cc.) of paraldehyde for patients weighing more than 8 stones (112 pounds, or 50 Kg.). For patients under this weight the dose was in the proportion of 1 drachm of paraldehyde per stone, which is equivalent to 1 cc. of paraldehyde for 1.8 Kg.

Another report on paraldehyde used rectally for basal narcosis was made by J. L. Thompson and L. J. T. Hartnett (*M. J. Australia* **2**:682 [Dec. 3] 1932). Their report was based on experience with seventy cases in which the dosage of paraldehyde was from 0.3 to 1.2 cc. per kilogram in five times that amount of physiologic solution of sodium chloride administered rectally half an hour after a hypodermic injection of morphine, atropine and scopolamine, and one hour before the operation. These authors found that sleep occurred by the end of such administration, that anesthetization was simple, and that much less anesthetic agent was required than otherwise. Although unconsciousness was maintained several hours after operation, the reflexes returned quickly when the actual anesthetic was stopped. No unpleasant odor or taste was noted by any of the patients. Paraldehyde is recommended because it lessens the shock and postoperative pain, is easy to administer, is safe and certain in action, and is inexpensive.

PAINFUL FEET

To the Editor:—Why is it that certain people employed in mercantile establishments and constantly walking about on a hard floor surface, without any demonstrable physical or roentgen changes in either foot, complain of considerable pain during their hours of employment? The pain exists in both feet, involving the metatarsophalangeal area, and is relieved when the patient operates a delivery truck or walks on other than a hard surface, in spite of the latter not being of even contour; in fact, being rough. The patient in mind is 23 years of age and has purchased every type of shoe and support for the foot but cannot get relief. This condition has existed for several years and of late is becoming quite a problem. Can you give me an explanation of what the condition is called, the prognosis and the treatment? Please omit name.

M.D., Wyoming.

ANSWER.—The condition described would be classed as metatarsalgia, or foot strain.

The muscles are the first line of defense. After they have been strained to the limit, ligamentous strain comes into the picture. Standing is usually worse than walking, because in walking the muscles are used only intermittently.

In driving a truck the man exercises his muscles, especially the interossei, and keeps all other muscles and ligaments in good tone. Some of these patients develop "march foot" with an actual fracture.

USES OF EPSOM SALT COMPRESSES

To the Editor:—I find many doctors using hot epsom salt compresses to localize infections, such as abscesses. What does the work: the epsom salt or the heat? Would dry heat or infra-red be just as efficient? Is there any special virtue to hot epsom salt compresses in infection after an incision has been made? Does the hypertonic solution actually "draw" out the purulent material? If so, is there any preferable concentration of epsom salt? Is epsom salt solution antiseptic in any degree? Please omit name.

M.D., Texas.

ANSWER.—Moist heat is often more soothing than dry heat, such as the infra-red. Warmth dilates the vasomotor nerves, producing a better blood supply, which aids tissue defense against infection and repair after injury. Where tension is present, heat may aggravate the pain and be contraindicated. A warm saturated solution of magnesium sulphate (epsom salt) applied to the skin exerts a soothing action in local inflammation whether from injury or infection, although as observed in erysipelas there may be no checking of the infection. An actual beneficial as well as soothing effect has been proved after burns of the skin. Magnesium sulphate has also been found to be of great service in the treatment of infected wounds when applied as a paste. A paste of 765 Gm. of dried magnesium sulphate and 350 Gm. of glycerite of phenol has been found satisfactory in packing infected wounds. The injection of magnesium sulphate causes an increase in phagocytosis but no leukocytosis. Experimentally there is no migration of leukocytes from the application of magnesium to the frog's mesentery. It has no anesthetic effect on mucous membranes but does have a selective action on the motor endings of nerves, even in small doses. Solutions from 12.5 per cent to a saturated solution have been found to be soothing, to increase phagocytosis and to favor tissue repair.

EPILEPSY

To the Editor:—A woman, aged 36, developed epilepsy at the age of 24 years. She has been having grand mal attacks occasionally in spite of medication, and two weeks ago she had several attacks in one night, followed by a delirium in which there have been no hallucinations but delusions. She has been rather excited, and it has been necessary to use a chloral and bromide mixture and sodium amytal. This was interpreted as a status epilepticus equivalent, and as such it should be expected to last only a week or two. She has had experiences somewhat similar to this lasting a week; however, this is going on to the third week and there has been no change other than transient moments of more normal personality. Physical examination is negative with the exception that she has had an operation for removal of both tubes, ovaries and the uterus. I should be interested to have your comment about this condition if possible from this limited information. Please omit name.

M.D., Michigan.

ANSWER.—Whenever convulsions begin after the age of 21, the diagnosis of idiopathic epilepsy should be held in reserve. It would be important to know whether this patient had any convulsions in childhood which might be considered the onset of the disease. The majority of epileptic patients have their first convulsions some time before puberty. In this case it would be advisable to obtain a careful history as to epilepsy in the family and then to make an extremely careful examination of the patient. This should include an examination of the optic fundi, a roentgenogram of the skull, a Wassermann test on both blood and spinal fluid, and an examination of the spinal fluid. If an organic lesion and syphilis can be definitely excluded, the diagnosis of epilepsy might be considered. A frontal lobe tumor, cerebrospinal syphilis and encephalitis must be considered in the diagnosis. The delirium and delusions might be caused by the medication. Bromides may eventually produce a mental deterioration, and phenobarbital may in some cases produce symptoms similar to intoxication with alcohol. If the examinations reveal no further information, it would be advisable to attempt to control the patient's condition with deodorized tincture of opium, which will produce cerebral sedation. Subsequently one of the barbiturates, preferably phenobarbital, may be administered in increasing dosage until the seizures are under control.

PROTECTIVE SUBSTANCES FOR SKIN

To the Editor:—A cobbler consulted me about the condition of the skin on his thumb and first two fingers of his left hand. The skin is dry, thickened and scaly, and at times it cracks open and bleeds. The fingers are very painful and he keeps them protected with gauze, which naturally interferes with his work. The index finger and thumb, which he uses to pick up and hold shoe nails, are the worst. This condition has existed for several years and he has tried many preparations to relieve the condition but without success. Can you tell me anything that might give this man relief?

H. H. ASH, M.D., West Lafayette, Ind.

ANSWER.—The shoemaker and repairer is exposed to many irritants, such as those used in the complicated processing of leather, those present in shoe dyes and polishes, and the wax he uses in sewing leather. It is no wonder that dermatitis of the fingers is a common affliction. Attempts to soothe and heal the skin are unavailing because of repeated exposure. An attempt may be made to discover which of the many irritants is responsible. Patch tests are made by applying a small amount of the substance to be tested to apparently normal skin, covering it with gutta percha, rubber dam or oiled silk, and fastening this on with adhesive tape. If no itching is felt, the patch may be left on for two days. At the end of this time, or earlier if itching is felt, it is removed and the reaction read. Any dermatitis at the center is recorded as positive.

If the substance found responsible for the dermatitis can be avoided, the difficulty is solved. If, however, it is indispensable in the work, he may be able to protect his skin by coating his hands with a protective dressing not thick enough to hinder the action of the fingers but sufficient for protection against any but watery solutions. After washing, it must be renewed.

After work, it is washed off and a soothing ointment applied. If the skin is found sensitive to alkalis (a test with soap solution should always be included among the patch tests), plain water, oatmeal water, ointment of rose water or liquid petrolatum may be used for washing.

POLLENS IN NEW YORK AREA

To the Editor:—A boy, aged 5 years, contracted hay fever the second day of last August, which lasted through to the early part of September. His parents are considering sending him to a camp in the Schroon Lake area in upper New York State with the hope of avoiding a recurrence. 1. Is this botanic area suitable? 2. Is there any better place within a radius of 300 or 400 miles from New York City? Please omit name.

M.D., New York.

ANSWER.—It is assumed that this boy is sensitive to ragweed, although the history is not quite typical, the symptoms beginning and terminating rather early.

1. No local pollen surveys have been reported for the Adirondack region, but because of the predominance of forest flora there is reason to believe that there is less ragweed pollen in the vicinity of Schroon Lake than in the surrounding populous areas where atmospheric studies have been made. The approximate average annual fall of ragweed pollen in surrounding districts is as follows:

New York: 1,606 pollen granules to 1.8 sq.cm. or 100 pounds per square mile.
Buffalo: 8,992 pollen granules to 1.8 sq.cm. or 563 pounds per square mile.
Montreal: 744 pollen granules to 1.8 sq.cm. or 47 pounds per square mile.
Boston: 790 pollen granules to 1.8 sq.cm. or 50 pounds per square mile.

2. There is no place within 400 miles of New York City which has been proved by atmospheric tests to be free from ragweed pollen. Two localities, however, enjoy considerable popularity and are probably relatively free. These are Bethlehem, N. H., in the White Mountains, and the Georgian Bay region of Ontario. It is likely that either of these places would be better than the Adirondacks, since they are farther from agricultural areas and less likely to be affected by ragweed pollen blown in on prevailing westerly winds.

PREMATURE INFANTS

To the Editor:—Just what constitutes a premature infant? Would a 5 pound infant, born at what is believed to be term, from an apparently healthy mother, be called premature? Davis asks: "Is it customary to designate as premature all infants who at birth weigh between 1,500 and 2,500 Gm.?" and states that "immature as here used is the expression applied to any infant weighing less than five pounds."

J. D. WALLER, M.D., Wilmont, Minn.

ANSWER.—Ordinarily an infant born before the fortieth week of intra-uterine life is considered to be prematurely born. However, many infants born from one to three weeks before term are so well developed that they are treated much the same as a full term infant. An infant weighing 5 pounds (2,268 Gm.) might be a premature infant, an immature full term infant, or a small full term infant commonly seen in twins. The decision as to how to treat this child would depend largely on its physical condition and the state of its development as manifested by its skin and nails, and its ability to maintain a normal temperature and digest food mixtures ordinarily taken by a new-born infant.

FUSIFORM BACILLI IN MOUTH AND VINCENT'S ANGINA

To the Editor:—In the course of many examinations of patients' gums and throats for the organisms of Vincent's angina, I have frequently found smears that contained both fusiform bacilli and Spirochaeta refringens without there being any lesions definitely demonstrable. I should like to have some information as to the incidence of positive smears in the absence of any well marked lesions and also the extent to which the disorder is communicable in situations such as this. What treatment would you recommend for cases of this kind?

ROSS MCC. CHAPMAN, Towson, Md.

ANSWER.—There is a marked difference of opinion both as to the facts and as to their significance with reference to this question. Smith (Oral Spirochetes, Baltimore, 1932, p. 68) says: "Fusiform bacilli, spirochetes, vibrios and cocci are normal inhabitants of the mouth. A few of these organisms are always to be found in smears from the gingival groove. Under conditions of disease they are enormously increased in number." Appleton (Bacterial Infection, Philadelphia, 1925, p. 409) is of the opinion that: "Healing of the lesions goes on parallel with the disappearance of the organisms. When complete, no organisms remain." However, it must be admitted that the weight of opinion supports the belief that these bacteria are common in filthy mouths and in persons with unhealthy gums, as in pyorrhea. Treatment in such cases should be directed to the elimination of conditions that favor multiplication of these organsms, such as gingival flaps over partly erupted lower third molars, dental defects favoring the collection of food or other débris, calculus, dental decay and diseased tonsils. It is possible that the carrier may be concerned in transmitting this disease, but there is no evidence to support such a belief. It would seem much more likely that only the "enormously increased number" in the active stages of the process favor contagion. Therefore only active preventive measures are warranted in dealing with the acute condition.

KERATITIS FROM TYPE WASH

To the Editor:—A certain type wash, containing ether, alcohol and phenol (carbolic acid), proportions unknown, was accidentally rubbed in the eye of a patient. No immediate pain was noted. The eye became red and a sensation of a foreign body in the eye was complained of. I saw the patient three weeks afterward and found a keratitis profunda but no evidence of ulceration. Could such type wash as used in printing establishments be etiologically connected with the deep corneal inflammation? Is there any available literature on this subject? Please omit name.

M.D., Illinois.

ANSWER.—Yes. Any one of the three substances mentioned could result in the deep keratitis spoken of. A complete digest of the literature to date upon this subject is contained in the following references:

Wagenmann, in Graefe-Saemisch: Handbuch der gesamten Augenheilkunde, ed. 11, 9: 1579, 1910.
Cramer, in Kurzes Handbuch der Ophthalmologie 4: 528, 1931.
Würdemann, H. V.: Injuries of the Eye, ed. 2, St. Louis, C. V. Mosby Company, 1932, p. 413.

PSEUDOHEMOPHILIA HEPATICA

To the Editor:—A man, aged 40, known to be an alcoholic addict, died suddenly without medical attention. There was a history of marked albuminuria and attacks resembling epilepsy. At necropsy he was found to have chronic nephritis, marked edema and atrophy of the brain and an acutely dilated heart. An unusual finding was the failure of the blood to clot. It had not been hemolyzed. There was no evidence of carbon monoxide, potassium cyanide, strychnine or other poisons. Can you tell me other possible causes of failure of the blood to clot? Please omit name.

M.D., Iowa.

ANSWER.—The most likely possibility in an alcoholic addict with this history and no previous evidence of a hemorrhagic diathesis is pseudohemophilia hepatica. The liver is the principal source of fibrinogen formation. Experimental injury to this organ results in a reduction of blood fibrinogen and prolongation of the normal clotting time. Clinically, the prolongation of the clotting time has been observed in persons with cirrhosis of the liver from chronic alcoholism, phosphorus and chloroform poisoning. Frank coined the term pseudohemophilia hepatica for this group of cases.

EXCISION OF HEMANGIOMA

To the Editor:—Is surgical excision of a wine colored hemangioma about the size of a nickel and slowly growing an accepted method of treatment? It is elevated about one-sixteenth inch. The patient is a 3 months old baby girl. The hemangioma is on the abdomen. Kindly omit name.

M.D., Long Island.

ANSWER.—Excision of small hemangiomas is an accepted method of treatment. If there is no underlying cavernous angioma, it ought not to give trouble. The excision must be wide of the tumor and care must be taken to ligate the vessels leading to the tumor. The excellent cosmetic results from treatment with the filtered rays of radium have made this a much more popular method at the present time.

PSORIASIS AND CLIMATE

To the Editor:—Have you on file any accurate and reliable information as to whether psoriasis is more prevalent in any particular country in the world? Have you, on the other hand, any information regarding the fact that psoriasis is not seen in Siam? Is it true that psoriasis is rarely seen in countries located on the equator?

ALBERT M. CRANCE, M.D., Geneva, N. Y.

ANSWER.—Psoriasis seems to be more prevalent in the colder climates. Even in the temperate zone the disease is much more common in winter than in summer. It is true that one occasionally will get what is spoken of as an "inverse" type of psoriasis, whereupon it is worse in summer than in winter. These cases are far in the minority, however.

We have no information as to the frequency of psoriasis in Siam. Probably the same conditions would apply to Siam,

however, as to any tropical country. The disease is not as frequent in the tropics as in the temperate zone. This is due, in part, to the temperature and, in part, to the influence of the sun's rays. It is well known that psoriasis does not appear on the parts exposed to the sun. Moreover, one of the best treatments that dermatologists have for obstinate cases of psoriasis is to send the patient South. Frequently sunning for a few weeks in a warm climate will take care of a very resistant type of the disease, even when it has reached the point at which it seems that nothing will help it.

ANILINE POISONING

To the Editor:—Kindly let me know whether there are reports of systemic disturbance of people working in aniline oil.

E. M. Friman, M.D., Canton, Ohio.

Answer.—Yes. In every year since 1913, when the first extensive account of aniline poisoning in this country was published, one or more reports have appeared descriptive of this occupational disease. Among others:

Davis, P. A.: J. Indust. Hyg. 3: 57 (June) 1921.
Lintz, William: Aniline Poisoning, The Journal, March 3, 1917, p. 692.
Luce, R. V., and Hamilton, Alice: Industrial Aniline Poisoning in the United States, The Journal, May 6, 1916, p. 1441.
International Labour Office, Encyclopedia of Industrial Hygiene, vol. 1.

DRUGS TO CONTROL REACTION OF URINE

To the Editor:—Is there any medicament that may be administered by mouth that has a physiologic action of a sedative to the mucous membrane of the posterior urethra and base of the bladder for those conditions of urinary frequency not due to bacterial invasion, growths or organic prostatic disease? Please omit name.

M.D., California.

Answer.—If such cases exist they are in all probability due to the reaction of the urine. Acid urine may cause such irritation. Drugs that reduce the acidity of the urine or throw it over to an alkaline reaction, such as sodium citrate or sodium bicarbonate, may relieve this.

VACCINATION SCAR AS SIGN OF IMMUNIZATION

To the Editor:—Is it possible for a patient to receive immunity to smallpox even though a scar or take does not result after two vaccinations? Kindly omit name.

M.D., Oklahoma.

Answer.—While the possibility of some immune reactions to the virus introduced at the time of vaccination cannot be denied, preventive immunization against smallpox is dependent on the local and general reactions characteristic of successful vaccination. A person who has been vaccinated twice without a take is not protected against smallpox.

SIMULTANEOUS IMMUNIZATION

To the Editor:—I was much interested in your reply to the question regarding simultaneous immunizations (The Journal, April 14, p. 1251, and April 21, p. 1326). I have always felt that it was only rational to carry out a single procedure at a time, as you suggest. Dr. Leake presented an outline in The Journal, Jan. 28, 1928, where rapid immunization for a number of diseases seemed to be necessary. Now that general practitioners are becoming more and more interested in preventive work, they seem to feel it necessary to reduce the routine that has previously been followed and combine all immunizing practices in one single dose. I grant you that if this were a correct procedure it would be highly desirable. As it never seemed to me a scientific procedure to ask the same set of cells to manufacture two or more specific antibodies at one and the same time, I wrote fifteen or twenty outstanding men in this country regarding it and received some interesting replies. To my surprise the laboratory men (no less than McCoy of the United States Public Health Service, Young of Michigan, and others) almost unanimously were of the opinion that there was no reason why two or more immunizing agents should not be given at the same time. Dr. Hektoen of Chicago felt that he would hesitate about giving smallpox vaccination with other immunizing agents, as in that case one would be dealing with a live virus; otherwise there would be no objection. To Major Hitchens at Fort Sheridan it seemed to be a live subject and he hoped that some one would be interested and that they would carry out measured experiments.

I. F. Thompson, M.D., Racine, Wis.
Commissioner of Health.

DERMATITIS DUE TO SPUN GLASS

To the Editor:—On page 1245 of The Journal of April 14 appears a question in regard to a dermatitis due to spun glass. In the answer it is stated that this condition has not been mentioned previously in the literature. I encountered the following reference, which is a brief discussion and report of a single case and may be of interest to your correspondent:

von Szentkirályi, S.: Dermatitis artificialis durch Engelhaare, *Dermat. Wchnschr.* 93: 1302 (August 15) 1931.

Laurence Taussig, M.D., San Francisco.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

Alabama: Montgomery, July 10-13. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

American Board of Dermatology and Syphilology: *Oral.* Cleveland, June 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

American Board of Obstetrics and Gynecology: *Oral* (all candidates), Cleveland, June 12. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

American Board of Ophthalmology: Cleveland, June 11, and Butte, Mont., July 17. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

American Board of Otolaryngology: Cleveland, June 11. Sec., Dr. W. P. Wherry, 1300 Medical Arts Bldg., Omaha.

Arizona: *Basic Science.* Tucson, June 19. Sec., Board of Basic Examiners, Dr. Robert L. Nugent, University of Arizona, Tucson. *Medical.* Phoenix, July 3. Sec., Dr. J. H. Patterson, 320 Security Bldg., Phoenix.

California: San Francisco, July 9-12 and Los Angeles, July 23-26. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Colorado: Denver, July 3-6. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

Connecticut: *Basic Science.* New Haven, June 9. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven. *Regular.* Hartford, July 10-11. *Endorsement.* Hartford, July 24. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* New Haven, July 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Delaware: Wilmington, June 12-14. Sec., Medical Council of Delaware, Dr. Harold L. Springer, 1013 Washington St., Wilmington.

District of Columbia: *Basic Science.* Washington, June 25-26. *Medical.* Washington, July 9-10. Sec., Commission on Licensure, Dr. W. C. Fowler, 203 District Bldg., Washington.

Florida: Jacksonville, June 11-12. Sec., Dr. William M. Rowlett, Box 786, Tampa.

Illinois: Chicago, June 26-29. Supt. of Regis., Dept. of Regis. and Edu., Mr. Eugene R. Schwartz, Springfield.

Indiana: Indianapolis, June 19-21. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, Room 5, State House Annex, Indianapolis.

Iowa: Iowa City, June 5-7. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

Kansas: Topeka, June 19-20. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewalt, Larned.

Kentucky: Louisville, June 6-8. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

Maine: Augusta, July 5-6. Sec., Board of Regis. of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

Maryland: *Homeopathic.* Baltimore, June 12-13. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore. *Regular.* Baltimore, June 19-22. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

Massachusetts: Boston, July 10-12. Sec., Board of Regis. in Medicine, Dr. Stephen Rushmore, 144 State House, Boston.

Michigan: Ann Arbor, June 5-7 and Detroit, June 12-14. Sec., Board of Regis. in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

Minnesota: *Basic Science.* Minneapolis, June 5-6. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, June 19-21. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

Mississippi: Jackson, June 26-27. Sec., State Board of Health, Dr. Felix J. Underwood, Jackson.

Missouri: St. Louis, June 14-16. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

National Board of Medical Examiners: The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates, June 25-27 and Sept. 12-14. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

Nebraska: Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

New Jersey: Trenton, June 19-20. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

New York: Albany, Buffalo, New York and Syracuse, June 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315 Education Bldg., Albany.

North Carolina: Raleigh, June 18. Sec., Dr. B. J. Lawrence, 503 Professional Bldg., Raleigh.

North Dakota: Grand Forks, July 3-6. Sec., Dr. G. M. Williamson, 4½ S. 3d St., Grand Forks.

Ohio: Columbus, June 5-8. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma: Oklahoma City, June 6-7. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

Pennsylvania: Philadelphia and Pittsburgh, July 10-14. Sec., Board of Medical Education and Licensure, Mr. W. M. Denison, 400 Education Bldg., Harrisburg.

Rhode Island: Providence, July 5-6. Dir., Public Health Commission, Dr. Lester A. Round, 319 State Office Bldg., Providence.

South Carolina: Columbia, June 26. Sec., Dr. A. Earle Boozer, 503 Saluda Ave., Columbia.

South Dakota: Rapid City, July 17-18. Dir., Division of Medical Licensure, Dr. Park B. Jenkins, Pierre.

Tennessee: Knoxville, Memphis, and Nashville, June 14-15. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

Texas: Fort Worth, June 21-23. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bank Bldg., Dallas.

Utah: Salt Lake City, June 27-29. Dir., Department of Registration, Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 20-22. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 20-22. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.
WASHINGTON: *Basic Science.* Seattle, July 16-17. *Medical.* Seattle, July 19-21. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.
WEST VIRGINIA: Wheeling, July 9. State Health Commissioner, Dr. Arthur E. McClue, Charleston.
WISCONSIN: Milwaukee, June 26-29. Sec., Dr. Robert E. Flynn, 401 Main St., LaCrosse.
WYOMING: Cheyenne, June 4. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Rhode Island January Report

Dr. Lester A. Round, director, Rhode Island Public Health Commission, reports the written and practical examination held at Providence, Jan. 4-5, 1934. The examination covered 7 subjects and included 70 questions. An average of 80 per cent was required to pass. Six candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine	(1933)	83.9,* 84.8,*	88*
Boston University School of Medicine	(1933)		86.4*
Tufts College Medical School	(1929) 84.2, (1932)		83

One physician was licensed by endorsement on January 11. The following school was represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Boston University School of Medicine	(1931)		N. B. M. Ex.

*License withheld pending completion of internship.

Wyoming Reciprocity Report

Dr. W. H. Hassed, secretary, Wyoming State Board of Medical Examiners, reports 2 physicians licensed by reciprocity at the meeting held in Cheyenne, Feb. 19, 1934. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School	(1933)		California
Marquette University School of Medicine	(1933)		Wisconsin

Book Notices

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1933 with the Comments That Have Appeared in The Journal. Cloth. Price, $1. Pp. 188. Chicago: American Medical Association, 1933.

A feature of marked current interest in this volume is the preliminary report on alpha-dinitrophenol, the new drug for acceleration of cellular metabolism. The Council voices a warning on the dangers attending the use of this drug; this warning has been increasingly justified in reports of fatalities since the appearance of the Council's report in July of last year. Other preliminary reports which make this volume one of the most interesting issued by the Council in recent years are those on Diladid, a new narcotic drug related to morphine; Fuadin, a new antimony compound for use in the treatment of bilharziasis and granuloma inguinale, and Hippuran, a new product for intravenous and oral urography.

The comprehensive and definitive special report on estrogenic substances furnishes a much needed review of the present status of such products in gynecologic therapy. The Council insists on the doctrine that basic laboratory investigation of these substances should precede clinical use. With the report on antipneumococcus serum containing type II antibodies, the Council, in the light of recent improvement in preparations and technic, puts its stamp of approval on the experimental use of type II antibodies as well as type I antibodies, which have been previously the only organisms of this kind recognized by the Council as worthy of clinical trial. Of interest to hospital authorities, especially in connection with the book Hospital Practice for Interns, recently issued by the Council in collaboration with the Council on Medical Education and Hospitals, is the special report The Hospital Formulary, by Hatcher and Stainsby of New York. It outlines a plan characterized by the highest regard for the principles of rational drug therapy. Of more general interest is the Council's second report on the intravenous use of barbital compounds, which is the result of a questionnaire sent to representative physicians. In view of the answers to the questionnaire, the Council reaffirmed its previous decision concerning the limitations of intravenous use of barbital compounds; namely, that these preparations should be administered intravenously only in a limited number of conditions in which administration by other routes is not feasible. The report carefully details these conditions.

The comparatively large number of reports on articles omitted from New and Nonofficial Remedies shows that the Council has recently been much concerned with products for which the original promise of therapeutic usefulness has not been fulfilled: witness the omission of Bacillus Bulgaricus and Kefir Fungi Preparations; Benzyl Benzoate; Benzyl Fumarate; Benzyl Succinate; Optochin Base; Pyridium, and Thiosinamine, all of them for the reason stated. The lengthy report on the omission of Pyridium is an example of the meticulous fairness characteristic of the Council's treatment of the manufacturers of commercial preparations. In connection with the omission of Pyridium should be noted the report which declares Azophene (Mallophene) not acceptable. This product has been shown to be identical with Pyridium and the Council considers the claims for its usefulness as a local, general or urinary antiseptic as unwarranted as are those for Pyridium.

The main bulk of the volume, which, incidentally, is considerably increased over that of recent annual volumes, is taken up with reports on products which the Council has found unacceptable for inclusion in New and Nonofficial Remedies. Of special note are the report on Alpha-Lobelin, a drug on which the Council in 1927 issued a preliminary report but which is now found not to have established itself as a respiratory stimulant of as great usefulness as carbon dioxide and oxygen; the report on a number of preparations marketed by the Upjohn Company with unwarranted, misleading and unscientific claims; the report on Clavipurin, a preparation of the alkaloids of ergot, marketed without adequate declaration of the composition and without adequate standardization under a nondescriptive proprietary name with unwarranted therapeutic claims; the report on Diampysal, another pyridine derivative proposed for use in bacterial infections, convincing evidence for the therapeutic value of which is lacking; the report on Euphydigtal, an irrational mixture of digitalis and a theophylline preparation marketed under an uninforming, proprietary name, with exaggerated and unwarranted claims for its therapeutic value; the report on Guphen, stated to be the guaiacol ester of phenylcinchoninic acid, marketed with unwarranted therapeutic claims under an uninforming proprietary name and having no proved advantage over its constituents administered separately; the report on Niazo, another pyridine compound of unsubstantiated value as a urinary antiseptic; the report on Omnadin, a preparation recognized for use for nonspecific lipoprotein therapy practically as a cure-all, and the report on a group of endocrine preparations of the Rovin Laboratories variously unacceptable as being of indefinite composition and of undemonstrated therapeutic value.

The Practitioners Library of Medicine and Surgery. Volume V: Traumatic Surgery. [George Blumer, Supervising editor]. Associate editor: Theodore S. Meise, Jr., B.A., M.D., Surgeon to the Eastern Maine General Hospital, Bangor. Cloth. Price, $10 per volume. Pp. 1090, with illustrations. New York & London: D. Appleton-Century Company, 1934.

The Practitioners Library of Medicine and Surgery. Volume VI: Obstetrics and Gynecology. [George Blumer, Supervising editor]. Associate editor: Luther K. Musselman, B.S., Ph.D., M.D., Associate Clinical Professor of Obstetrics and Gynecology, Yale University School of Medicine. Cloth. Price, $10 per volume. Pp. 900, with illustrations. New York & London: D. Appleton-Century Company, 1934.

These new additions to the Practitioners Library are on a par with the previously published volumes. They constitute essentially individual systems of "Traumatic Surgery" and "Obstetrics and Gynecology." The authors have been selected from a variety of institutions and have developed the topics they discuss according to simple and systematic outlines. The publisher has been extraordinarily generous in the provision of illustrations. The volume on "Obstetrics and Gynecology" is competent. The authors chosen are thoroughly familiar with the most recent literature of their subjects and the bibliographic references include not only recent contributions but also classic

contributions of an earlier day. If there is any special characteristic of these two volumes, it is the uniformly high character of practically all the contributions. It is rare in systems of such scope to find such an evenness of quality as is here apparent.

Studies in the Psychology of Delinquency. By Grace W. Pailthorpe. Medical Research Council, Special Report Series, No. 170. Paper. Price, 2s. Pp. 113. London: His Majesty's Stationery Office, 1932.

This study in the psychology of delinquency gives the result of investigations made on the recommendation of the Committee on Mental Disorders of the Medical Research Council of Great Britain. The material has been gathered over a period of five years from the inmates of prisons and of preventive and rescue homes. The study represents a combination of clinical and statistical approach and as such it is methodically superior to such statistical studies in criminology as do not investigate in detail the individual cases that serve as the basis of statistical calculations. The writer emphasizes the fact that, in contrast to most authors in this field who chiefly utilize methods of measurement and comparison instead of the most fundamental applications of psychopathology to individuals, she attempts to apply the analytic principles and refers to the similar efforts of Alexander and Staub in Berlin and of Aichhorn in Vienna. Although in the author's individual work with criminals there was no opportunity for formal, deep analysis of individual cases, she adopted the "simple but revolutionary expedient of letting the subject tell her own story, having first of course removed all possible obstacles to or obvious sources of bias in the recital."

The first part of the book consists in a comparative investigation of 100 female inmates of seven preventive and rescue homes in London. The cases were investigated by the standard methods of intelligence testing and with the method of prolonged interviews, approaching somewhat the psychoanalytic interviews. The second series of investigations was carried out on 100 female inmates of preventive and rescue homes and contains, apart from psychologic analysis, environmental studies, the results of which are also statistically worked up. It is noteworthy that in fifty out of a hundred cases satisfactory homes have been found and in only nine cases vicious homes. The high proportion of psychoneuroses and mental conflict, 55 per cent, is similarly of great interest. The second part of the book deals with case histories. The method adopted for taking case histories does not entitle one to expect a deep insight into the emotional development of the cases. But the case histories are intelligently recorded and show that the author's eye has been trained for observing relevant material. In summing up her results, the author states that there are 111 cases in 200 which need psychologic treatment in some form or other, and this figure excludes mental defectives and constitutional inferiors. Apart from treatment, segregation or supervision is also necessary.

Regarding sentiment development, the author recommends experimentation with intensive social education and psychoanalytic treatment. She suggests four general methods for dealing with the offenders: (1) segregation (*a*) permanent, (*b*) temporary, (2) permanent supervision without loss of freedom, (3) education, (4) psychotherapy. Regarding the group that suffers from mental conflict or epilepsy and also displays psychotic tendencies before any definite psychosis has developed, the author first recommends full psychologic investigation. The investigator would then be in a position to advise (1) a specialized environment, educative or otherwise; (2) suggestion, direct or indirect; (3) psychoanalytic treatment. The author says that in 19 per cent of all cases of this group psychoanalytic treatment seems to be indicated.

On the whole, apart from some details, this study will be approved of by all physicians and criminologists who have accepted the principles of modern dynamic psychology. The relatively small number of investigated cases does not allow far-reaching statistical conclusions, but because of the careful individual study of the cases which are considered in the statistical charts this little study is much more valuable than most statistical studies in this field, in which criminality is usually taken as a unit in a mass of statistical data which are partly based on police records or on other inadequate sources of knowledge of the individual cases.

La diathermie et ses applications médicales. Par le Docteur Paul Duhem, électroradiologiste de l'Hôpital des Enfants-Malades. Second edition. Paper. Price, 20 francs. Pp. 147, with 37 illustrations. Paris: Gauthier-Villars, 1933.

This is an enlarged and completely revised edition of a work forming one of the nineteen monographs on facts of physical therapy, edited and in this instance written by Duhem. It follows in general outline the style laid down for the entire series, presenting the available theories and proved facts of diathermy and its medical practice with the least amount of circumlocution. To accomplish this and to keep it within its present size, a great deal of detail has been sacrificed in order to stress the basic facts and principles on which this discipline is founded. Discussions are therefore concise, the subject matter having that orderly arrangement of sequence—theory preceding practice—which makes it a practical exposition on the subject. In the space of seven chapters the author has managed to present in rough outline the historical background of high frequency therapy, its physical principles and electrophysiologic data, even to the point of bringing these down to date by a sketchy but, nevertheless, concise review of the promising possibilities of electropyrexia and short wave therapy. That the practical side has not been neglected is indicated by the fact that nearly half of the subject matter is devoted to discussions of its therapeutic action, the author stressing principles above specific indications, rather than dogmatizing on individual conditions. One closes the book with a conviction that here has been presented a valuable summary of diathermy and its medical applications from the point of view of an individual who has obtained his information from the country in which the therapeutics of the high frequency current was discovered.

Leadership in Medicine. By Lord Moynihan. Walker Trust Lectures on Leadership, No. IV. Delivered before the University of St. Andrews, 16 February 1933. Paper. Price, 2s.6d. Pp. 48. London & New York: Oxford University Press, 1933.

The Oxford University Press here makes available in forty-eight pages of large, widely spaced type an essay by Lord Moynihan. Admirers of the literary style and of the philosophy of Lord Moynihan—and who is not—may wish to have the essay in this handsome form and consider the dollar well spent. The essay is built about the contribution of Lord Lister as contrasted with that of political and military leaders of mankind. It leads to the conclusion that science has assumed responsibility for leadership in industry and that what is now needed is introduction of the scientific method into the government of affairs.

Synopsis of Obstetrics and Gynecology. By Aleck W. Bourne, M.A., M.B., B.Ch., Senior Obstetric Surgeon, Queen Charlotte's Hospital, London. Fifth edition. Cloth. Price, $5.25. Pp. 439, with 175 illustrations. New York: William Wood & Company, 1932.

For the student desirous of rapid review in preparation for examination, Bourne's synopsis will be found of valuable assistance. It is written in outline form, well systematized, and illustrated with adequate line diagrams. In the new material in this edition the Stockholm treatment with radium for carcinoma of the cervix is fully outlined. The English school of teaching is strictly followed, so that in certain subjects, such as forceps, some variance from American practice will be observed. In general, however, the subjects are outlined in wholly acceptable form. The type is small with boldface headings. An adequate index is appended.

A Text-Book of Gynaecology for Students and Practitioners. By James Young, D.S.C., M.D., F.R.C.S.E., Gynaecologist, Royal Infirmary, Edinburgh. Third edition. Cloth. Price, $3.75. Pp. 411, with 220 illustrations. New York: The Macmillan Company; London: A. & C. Black, Ltd., 1933.

This is an almost complete revision of the previous editions. The chapters on physiology, disorders of menstruation, uterine hemorrhage and sterility have been completely rewritten. This well written and concise volume is an excellent textbook for students. However, the space devoted to operative gynecology might well have been devoted to an elaboration of certain chapters that have suffered by their brevity. The section on operative procedures is so incomplete and poorly presented that its omission would have been a distinct improvement.

Miscellany

RECENT DEVELOPMENTS IN PHARMACOPEIAL VITAMIN STANDARDIZATION

During the revision of the U. S. P. X it became apparent that the newly discovered fat-soluble vitamin A should be recognized as an important factor in the potency of cod liver oil. It was also being demonstrated that "the antirachitic factor" should be given consideration, but at that time it had not been sufficiently studied so that there was knowledge of how to evaluate it. A group of those active in developing vitamin knowledge, including Drs. Sherman, McCollum, Anderson, Holmes and the late Alfred F. Hess, were invited by the Pharmacopeia Committee to suggest the basis for the new U. S. P. text; they developed the first standard vitamin A assay method (1924) (U. S. P. X, p. 263) and this is still essentially correct. In setting a vitamin A standard for cod liver oil, these early workers realized that no one then knew what was the potency of an "average oil," so they required only a minimum amount (50 vitamin A units), primarily to exclude the cod liver oils then on the market, which were being purified and bleached by chemical methods, with destruction, thereby, of all vitamins.

In the period following 1926, when the U. S. P. X became official, the scientific knowledge concerning vitamins advanced rapidly, so that in 1930 it was realized that the U. S. P. standards were entirely inadequate. Steps were taken to issue a new text by "interim revision."

The U. S. P. board of trustees appropriated an initial $1,000 toward the expense and the Pharmacopeial Vitamin Committee was organized and the first meeting called in New York, under the auspices of the U. S. P. Committee of Revision and presided over by the chairman of that committee.

The conference agreed on the general methods of assay for vitamins A and D, adopting in the main the details that had already been carefully developed by a vitamin committee of the American Drug Manufacturer's Association. The committee adjourned after a full day of discussion, having reached practically a unanimous agreement on all points. The committee also appointed Drs. McCollum and Steenbock as their representatives at the International Vitamin Conference, called in London by the Health Organization of the League of Nations.

Some months later, the London conference having been held and its deliberations and conclusions released, a second meeting of the U. S. P. Vitamin Committee was called in New York, again with a large group, about thirty-five, participating. Again the government representatives, the leading experts in the vitamin sciences in this country and members of the scientific staffs of pharmaceutical manufacturers were present at the invitation of the Pharmacopeia. The committee agreed that the U. S. P. should adopt as its standards the "International Vitamin Units."

To carry out the decisions of the larger committee and to serve specifically as an advisory group for the Pharmacopeia, the U. S. P. board of trustees established the U. S. P. Vitamin Advisory Board and appointed, as members, Dr. Lafayette B. Mendel of Yale University, Dr. H. C. Sherman of Columbia University, Dr. E. M. Nelson, director of the Vitamin Laboratory of the Food and Drug Administration, Prof. E. F. Kelly, secretary of the American Pharmaceutical Association, representing the Trustees, and E. Fullerton Cook, representing the U. S. P. Committee of Revision.

THE INTERNATIONAL STANDARDS

By this time the Health Committee of the League of Nations had released and sent to this country a limited amount of the international vitamin A standard in the form of carotene and the international vitamin D standard, a special irradiated ergosterol, both of these having been prepared at the British Institute for Medical Research under the direction of Sir Henry Dale.

THE U. S. P. REFERENCE COD LIVER OIL OF KNOWN VITAMIN A AND VITAMIN D POTENCY EXPRESSED IN THE NEW U. S. P. UNITS (INTERNATIONAL UNITS)

There being only a limited amount of this international standard available, the vitamin board immediately undertook the preparation of a sufficient quantity of a cod liver oil of known vitamin potency to be used as the basis for the standardization of American preparations claiming A or D vitamin potency.

The vitamin board secured the cooperation of the Bureau of Fisheries at Washington, which supplied a sufficient quantity of authentic cod liver oil, collected and desterinated under the supervision of the government laboratory in Gloucester, Mass. This oil was immediately placed in 30 cc. amber-colored glass containers under rigid conditions involving the drying of the container and oil to eliminate all water, the exclusion of all air by vacuum, the introduction of carbon dioxide and hermetic sealing, independent of the screw cap.

This packaged oil was immediately placed in cold storage at a temperature under 15 C. Previous experience had shown that under such treatment and storage no deterioration in cod liver oil could be detected over a long period. Nevertheless the plans of the vitamin board include a reassay of this oil every six months for both its vitamin A and vitamin D potency.

To determine the initial vitamin activity of the "reference or standard cod liver oil," the board arranged with seventeen "vitamin laboratories" to assay this bottled oil, following exactly the assay methods adopted by the large vitamin committee. The board supplied added information made available by the International Vitamin Committee and supplied uniform report blanks, including graphs. All laboratories reported only by code number, the chairman of the board alone holding the key.

One set of assays was arranged for in London in the laboratory of Dr. Coward, another in Oslo, Norway, under Dr. Poulsson at the National Vitamin Laboratory, another at Johns Hopkins, another at Columbia University, another at the University of Wisconsin, and the others by well known vitamin experts, many of them directing commercial laboratories. The board paid for two of these assays and all others were voluntary. When it is realized that the average cost of a vitamin A assay is $280 and a vitamin D assay $80 and that many laboratories ran from two to five assays on this one sample, the extent and value of this cooperation can be estimated.

Another significant feature of the program is the fact that with the promulgation of the new U. S. P. vitamin standards and assay methods, most of the important vitamin laboratories in this country and even in producing countries abroad will already be thoroughly familiar with the details of the new U. S. P. assay.

Fifteen of the seventeen laboratories have reported and the other two have the assays under way. The vitamin board has painstakingly studied and evaluated the reports and has recommended the following standards for the official cod liver oil:

Minimum Standard for Vitamin A for U. S. P. Cod Liver Oil.—The minimum vitamin A standard for U. S. P. cod liver oil shall be not less than 600 international units.

Minimum Standard for U. S. P. for Vitamin D Cod Liver Oil.—The minimum vitamin D standard for U. S. P. cod liver oil shall be not less than 85 international units.

NOTE.—The new "U. S. P. vitamin A units" and "U. S. P. vitamin D units" are identical with the corresponding "international units." In expressing on labels the potency of vitamin-containing products, it is recommended that the term "U. S. P. vitamin A units" or "U. S. P. vitamin D units" be employed. To indicate the adoption of the new standards, the statement "U. S. P. X—revised 1934" may be used.

For the benefit of those who wish to know the approximate relationship between units they are now using and international units of vitamins A and D, the following information is provided:

One U. S. P. X, Sherman or A. D. M. A. unit of vitamin A equals approximately 1.4 international or new U. S. P. units.

One Steenbock unit of vitamin D equals approximately 2.7 international or new U. S. P. units.

One international or U. S. P. unit of vitamin D equals approximately 3.25 A. D. M. A. units. Or to phrase it another way, the new U. S. P. minimum standard of 600 U. S. P. Vitamin A units per gram is approximately equivalent to 428 "old" U. S. P. A. units; and the new 85 U. S. P. Vitamin D per gram is approximately equal to 31.5 Steenbock or 276 A. D. M. A. units.

The U. S. P. board of trustees has also announced the release of the "reference cod liver oil," prepared under the supervision of the vitamin board, for use in the standardization of medicinal or food products claiming vitamin potency, and already many laboratories in this country have secured this official vitamin standard. These new U. S. P. standards of vitamins A and D will be the basis for the evaluation by the Food and Drug Administration of all products in the country claiming vitamin A or D potency.

Copies of the U. S. P. X (1934) interim revision Cod Liver Oil Text or the Reference Cod Liver Oil may be obtained by addressing the Chairman of the Committee of Revision.

Medicolegal

Workmen's Compensation Acts: Industrial Commission May Not Order Attorney to Pay Medical Witness' Fee.—The state industrial commission of Oklahoma ordered a certain fee to be paid to a claimant's attorney and directed the attorney to pay, out of this sum, the witness fee of the physician who testified for the claimant in the case. It was contended that the commission erred in ordering the attorney to pay this witness fee. We regard this contention as serious, said the Supreme Court of Oklahoma. Attorneys are permitted to practice before the state industrial commission. Their fees must be approved by the commission before they become a lien on the compensation awarded. Attorneys should be accorded the same fair consideration in fixing the amount of their fees for appearing and conducting litigation before that body as they usually receive before any other tribunal, considering the amount of legal work done and the amount of money involved. The question of the reasonableness of the fee is a discretionary matter with the commission, and unless this discretion is abused the award should be upheld. For the commission, however, to direct that a lawyer pay a portion or all of the expense of a client's litigation is highly improper. It would not be sound policy to permit the commission to order the mingling of attorneys fees and medical fees. It might lead to the encouraging of litigation, collusion, and framing of evidence, and might tend to make a medical witness feel that his remuneration in the case would depend on the result of the commission's decision. The Supreme Court therefore declared void that portion of the award of the industrial commission directing payment of the witness fees out of the attorney's fees.—*Willhoit v. Prairie Oil & Gas Co. (Okla.), 26 P. (2d) 406.*

Workmen's Compensation Acts: Aggravation of Preexisting Heart Disease Compensable.—In the course of his employment the employee pushed up a grade tramway cars loaded with coal. After pushing one car containing a somewhat heavier load than usual, he appeared out of breath, evidenced extreme distress, sank to the ground and died within ten minutes. In a proceeding instituted by his widow under the Tennessee Workmen's Compensation Act, physicians testified that the death resulted from acute dilatation of the heart, which, in their opinion, was likely to result from overexertion. Proof was adduced, however, that prior to the alleged industrial accident the employee had "a chronic condition of heart weakness." The employer insisted that death was not due to an accident but rather to this disease condition of the employee's heart. The trial court awarded compensation to the widow and the employer appealed to the Supreme Court of Tennessee.

We are of the opinion, said the court, that under the facts shown here the award of the trial court was proper. In *Tennessee Eastman Corporation* v. *Russell*, 150 Tenn. 334, 265 S. W. 540, the court approved of the general rule of law that in proceedings under the workmen's compensation act "a preexisting weakness or disease will not prevent the injury from being the result of an accident, if the accident is the immediate cause of the injury." In *Brightman's Case*, 220 Mass. 17, 107 N. E. 527, L. R. A. 1916A 321, it was held that the acceleration of a previously existing heart disease to a mortal end sooner than it otherwise would have come was an injury within the meaning of the Massachusett's workmen's compensation act. The award in favor of the widow was affirmed.—*Cambria Coal Co. v. Ault (Tenn.), 64 S. W. (2d) 18.*

Society Proceedings

COMING MEETINGS

American Medical Association, Cleveland, June 11-15. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Academy of Pediatrics, Cleveland, June 11-12. Dr. Clifford G. Grulee, 636 Church Street, Evanston, Ill., Secretary.

American Association for the Study of Goiter, Cleveland, June 7-9. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.

American Association for the Study of Neoplastic Diseases, Baltimore, June 21-23. Dr. Eugene R. Whitmore, 2139 Wyoming Avenue, N.W., Washington, D. C., Secretary.

American Association for Thoracic Surgery, Boston, May 31-June 2. Dr. Duff S. Allen, 3720 Washington Boulevard, St. Louis, Secretary.

American Association of Industrial Physicians and Surgeons, Cleveland, June 11-12. Dr. Volney S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Association of Medical Milk Commissions, Cleveland, June 11-12. Dr. Harris Meak, 360 Park Place, Brooklyn, Secretary.

American Bronchoscopic Society, Cleveland, June 11. Dr. Louis H. Clerf, 110 South 10th Street, Philadelphia, Acting Secretary.

American Dermatological Association, New York, June 7-9. Dr. William H. Gray, 500 Penn Avenue, Pittsburgh, Secretary.

American Heart Association, Cleveland, June 12. Dr. Irl C. Riggin, 50 West 50th Street, New York, Executive Secretary.

American Laryngological Association, Cleveland, June 7-9. Dr. William V. Mullin, 9204 Euclid Avenue, Cleveland, Secretary.

American Neurological Association, Atlantic City, June 4-6. Dr. Henry Alsop Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Lucerne-in-Quebec, Canada, July 9-11. Dr. J. Milton Griscom, 2213 Walnut Street, Philadelphia, Secretary.

American Orthopedic Association, Rochester, Minn., June 6-9. Dr. Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., Secretary.

American Physiotherapy Association, Cleveland, June 13-16. Mrs. Bess Searls, 1430 West 77th Place, Chicago, Secretary.

American Proctologic Society, Cleveland, June 11-12. Dr. Frank G. Runyeon, 1361 Perkiomen Avenue, Reading, Pa., Secretary.

American Psychiatric Association, New York, May 28-June 2. Dr. William C. Sandy, State Education Building, Harrisburg, Pa., Secretary.

American Society of Clinical Pathologists, Cleveland, June 8-11. Dr. A. S. Giordano, 531 North Main Street, South Bend, Ind., Secretary.

American Surgical Association, Toronto, Canada, June 4-6. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Cleveland, June 8-9. Dr. Oscar B. Hunter, 1835 Eye Street, N.W., Washington, D. C., Secretary.

Arizona State Medical Association, Prescott, June 7-9. Dr. D. F. Harbridge, 822 Professional Building, Phoenix, Secretary.

Association for Research in Ophthalmology, Cleveland, June 12. Dr. Conrad Berens, 35 East 70th Street, New York, Secretary.

Association for the Study of Allergy, Cleveland, June 11-12. Dr. Warren T. Vaughan, 809 Professional Building, Richmond, Va., Secretary.

Association for the Study of Internal Secretions, Cleveland, June 11-12. Dr. F. M. Pottenger, Pottenger Sanatorium, Monrovia, Calif., Secretary.

Conference of State and Provincial Health Authorities of North America, Washington, D. C., June 5-6. Mr. A. J. Chesley, Minnesota State Office Building, St. Paul, Secretary.

Massachusetts Medical Society, Worcester, June 4-6. Dr. Walter L. Burrage, 182 Walnut Street, Brookline, Secretary.

Medical Women's National Association, Cleveland, June 10-12. Dr. Elizabeth Kittredge, 3906 McKinley Street, Washington, D. C., Secretary.

Minnesota State Medical Association, Duluth, July 16-18. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Montana, Medical Association of, Helena, July 11-12. Dr. E. G. Balsam, Box 88, Billings, Secretary.

New Jersey, Medical Society of, Atlantic City, June 5-8. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

New Mexico Medical Society, Las Vegas, July 19-21. Dr. L. B. Cohenour, 219 West Central Avenue, Albuquerque, Secretary.

North Pacific Pediatric Society, Vancouver, B. C., June 18. Dr. R. H. Somers, 1305 Fourth Avenue, Seattle, Secretary.

Pacific Coast Oto-Ophthalmological Society, Butte, Mont., July 16-18. Dr. F. C. Cordes, Fitzhugh Building, San Francisco, Secretary.

Pacific Northwest Medical Association, Salt Lake City, June 21-23. Dr. C. W. Countryman, 407 Riverside Avenue, Spokane, Wash., Secretary.

Rhode Island Medical Society, Providence, June 7. Dr. J. W. Leech, 167 Angell Street, Providence, Secretary.

Utah State Medical Association, Salt Lake City, June 21-23. Dr. Leland R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Wyoming State Medical Society, Casper, July 16-17. Dr. Earl Whedon, 50 North Main Street, Sheridan, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

3: 293-332 (March) 1934

Cancer of Larynx: Report of Three Cases of Laryngectomy. M. Equen, Atlanta, Ga.—p. 293
*Treatment of So-Called Intestinal Intoxication of Infants: Comprehensive Plan. A. C. Gipson, Gadsden.—p. 296.
Drifting Sands of Medical Practice. J. S. McLester, Birmingham.—p. 305.
Ankle Fractures. R. Carothers, Cincinnati.—p. 309.
Pelvic Inflammation in Women. G. F. Douglas, Birmingham.—p. 311.

Treatment of Intestinal Intoxication of Infants.—Gipson outlines a plan of treatment in cases of intestinal intoxication in infants. Ringer's solution is given intraperitoneally or subcutaneously or both ways. As quickly as possible, blood is taken from the baby and from relatives or friends in order that they may be cross-matched. A blood transfusion by the citrate method is done; the amount of blood given varies from 10 to 30 cc. per pound of body weight; transfusions seldom total less than 100 cc. or more than 200 cc. If the patient has acidosis, the stomach is washed and from 45 to 90 grains (3 to 6 Gm.) of sodium bicarbonate dissolved in from 40 to 60 cc. of ice cold water is left in the stomach. This treatment may be repeated once or twice, according to indications, at intervals of three hours. Water is given by mouth, either in fixed amounts at definite intervals or continuously by the drip method through a nasal catheter. Ringer's solution is administered parenterally as often as it is indicated. Transfusion may be repeated once or twice at intervals of twenty-four hours if the child does not improve. No food is given by mouth until toxic symptoms have disappeared or greatly diminished. When food is given, the interval is two hours, and the caloric value is raised daily by small increments. On the first day a total of about 50 calories is given, on the second 75, on the third 100, and so on. The increments may then be made larger and the total caloric requirement attained in a week or ten days. Modification of the procedures as regards feeding is made when the patient is an atrophic baby with severe infection.

American Journal of Cancer, New York

20: 539-790 (March) 1934

Dilatations of Cavity of Septum Pellucidum and Cavum Vergae: Report of Cases. W. P. VanWagenen and R. B. Aird, Rochester, N. Y.—p. 539.
Effect of Radium on Spinal Cord: Report of Two Cases of Myeloma. W. T. Peyton, Minneapolis.—p. 558.
Breeding Behavior of Dilute Brown Stock of Mice (Little dba). W. S. Murray, Bar Harbor, Maine.—p. 573.
*Metastasis of Melanoma to the Groin Four Years Before the Appearance of the Primary Lesion on the Heel. S. Selig, New York.—p. 594.
Multiple Primary Carcinoma Involving the Rectum and Ovary: Case. H. K. Seelaus and B. Haskell, Philadelphia.—p. 597.
Union of Pathologic Fractures Following Metastatic Hypernephroma. E. L. Rypins, Iowa City.—p. 601.
Accidental Autogenous Transplantation of a Mammary Carcinoma to the Thigh During a Skin-Graft Operation: Case Report. J. W. Spies, F. E. Adair and M. C. Jobe, New York.—p. 606.
Nematode and Carcinoma in Human Kidney Pelvis. A. Plaut, New York.—p. 610.
Tumor Amylase: General Properties and Estimation of Activity. F. H. Scharles and W. T. Salter, Boston.—p. 613.
Id.: Effect of Various Hormones and Chemical Agents. F. H. Scharles, Phoebe D. Robb and W. T. Salter, Boston.—p. 625.
Effect of Testicle Extract on Animal Neoplasms. F. Prime and C. D. Haagensen, New York.—p. 630.

Metastasis of Melanoma Four Years Before Appearance of Primary Lesion.—Selig presents the case of a nonpigmented melanoma of the right heel metastasizing to the groin four years before the primary growth was visible. The early metastasis may have been due to the constant trauma to which the growth was subjected because of its location. The tumor was resistant to roentgenotherapy. A lymph node metastasis was the first evidence of the disease, and a careful search of the skin over the area drained by the involved node failed to reveal the primary growth until more than four years had elapsed.

American Journal of Clinical Pathology, Baltimore

4: 1-168 (Jan.) 1934

Medicolegal Necropsy: Introduction. F. E. Sondern, New York.—p. 1.
Id.: Medicolegal System of United States. O. T. Schultz, Evanston, Ill.—p. 7.
Id.: The Medicolegal Necropsy. C. Norris, New York.—p. 24.
Id.: Performing the Medicolegal Necropsy. A. V. St. George, New York.—p. 32.
Id.: Pathologic Anatomy of Death by Drowning. E. L. Miloslavich, Zagreb, Jugoslavia.—p. 42.
Id.: Toxicology in the Medicolegal Necropsy. A. O. Gettler, New York.—p. 50.
Id.: Medical Examiners' Findings in Deaths from Shooting, Stabbing, Cutting and Asphyxia. H. S. Martland, New York.—p. 66.

American J. Obstetrics and Gynecology, St. Louis

27: 317-472 (March) 1934

Presidential Address: The Challenge of the Falling Birth Rate. J. C. Litzenberg, Minneapolis.—p. 317.
Rupturing the Membranes to Induce Labor. D. L. Jackson, Boston.—p. 329.
Histopathology of Epithelial Hyperplasia and Neoplasia of Cervix Uteri. H. Schmitz, F. A. McJunkin and M. A. Macaluso, Chicago.—p. 336.
Pregnancy and Rheumatic Heart Disease. W. A. Scott and D. N. Henderson, Toronto.—p. 342.
The Length of Labor: III. First Stage: Labor Pains and Consistency Cervix. L. A. Calkins, Kansas City, Mo.—p. 349.
*Complications Resulting from Pelvic Irradiation for Cancer of Cervix. P. Findley, Omaha.—p. 358.
Chemical Mechanism of Liver Protection in Abdominal Surgery. C. G. Heyd, New York.—p. 366.
Some Observations on Stricture of Female Urethra. H. M. N. Wynne, Minneapolis.—p. 373.
Study of Human Uterine Motility. F. L. Adair and M. E. Davis, Chicago.—p. 383.
Starvation Hypoglycemia in Late Pregnancy. E. D. Plass and E. B. Woods, Iowa City.—p. 395.
*Amenorrhea and Oligomenorrhea Associated with Low Basal Metabolic Rates. R. D. Mussey and S. F. Haines, Rochester, Minn.—p. 404.
Hemorrhage in the Later Months of Pregnancy. W. B. Hendry, Toronto.—p. 408.
Extensive Perineal Damage at Labor. H. M. Little, Montreal.—p. 414.
Secondary Abdominal Pregnancy: Analysis of Sixteen Cases with Report of Case. E. D. Colvin and J. R. McCord, Atlanta, Ga.—p. 421.
Interposition Operation for Procidentia Uteri: Report of Five Hundred and One Cases. A. J. Rongy, A. Tamis and H. Gordon, New York.—p. 428.
Prenatal Care in Private and Clinic Practice. G. D. Royston, St. Louis.—p. 440.
The Friedman Pregnancy Test. F. Spielman, New York.—p. 448.
Method for Biopsy and for Facilitating Insertion of Radium in Carcinoma of Cervix. H. Strauss, Brooklyn.—p. 451.
Atelectasis of the New-Born: Recovery Following Intratracheal Insufflation. D. A. Bristoll, New York.—p. 452.
Pyometra Complicating Pregnancy. W. F. Gemmill, York, Pa.—p. 453.
Uterus Didelphys: Case. G. R. Cheatham, Endicott, N. Y.—p. 455.

Complications Resulting from Pelvic Irradiation for Cancer.—Findley points out that complications, such as pyometra, parametritis and thrombophlebitis, are found in cases of cancer of the cervix after radium irradiation. The primary mortality of radium therapy is generally conceded to be about 2 per cent and is largely due to an awakening of an unrecognized latent infection within the pelvic structures or to direct contamination of the field of irradiation. When there is evidence of active pelvic infection, a period of rest should precede irradiation, together with such local applications as will favor the elimination of infection. When symptoms of cystitis arise shortly after irradiation, it is assumed that there was a preexisting and possibly unrecognized chronic cystitis, as cystitis does not usually manifest itself for from two to four weeks following irradiation. The usual edema and congestion of the mucosa of the bladder, incident to irradiation, rarely persists beyond from two to four weeks, but there are aggravated cases in which lesions of a serious nature develop one or more than one year later. Fistulas and fixation of the bladder are the end stages of a most distressing condition. In all this there is evidence of excessive irradiation and the lack of precautionary measures in protecting the bladder from direct exposure to the

rays. Chronic vaginitis, with the formation of adhesions between folds of the vaginal walls, is a late development and is largely confined to the postmenopausal period. Here, again, excessive dosage and inefficient screening are responsible. The rectum is most often the seat of postirradiation sequelae: proctitis, diarrhea, tenesmus, ulcers, fistulas and strictures. Pelvic irradiation for therapeutic purposes, in the presence of an unsuspected pregnancy or when done for the relief of conditions known to complicate a recognized pregnancy, is a serious matter. Irradiation of the early fetus results in such deformities as microcephalic idiocy, microcephaly, hydrocephalus, blindness, spina bifida, clubfoot, alopecia of the scalp, ossification defects of the skull, divergent squint, and deformities of the upper extremities. The likelihood of such deformities has led Norris to advise the interruption of pregnancy when it is disclosed that an unrecognized pregnant uterus has been irradiated for therapeutic purposes. An exploratory curettage preceding pelvic irradiation in the childbearing age as a precautionary measure would be advisable. Cancer of the cervix associated with pregnancy should be treated in the interests of the mother in the early stages of cancer. In the late stages the interest of the baby is the prime consideration and radium therapy is the method of choice. Because of the danger of infection and of injury to the fetus, the uterus should be emptied before radium is applied.

Amenorrhea and Low Basal Metabolic Rates.—Mussey and Haines discuss a small series of cases in which there was a low basal metabolic rate without evidence of myxedema, and in which amenorrhea or oligomenorrhea occurred, and a pathologic cause could not be found in the pelvis. Clinical observation has shown that either an excessive or an inadequate supply of thyroxine may definitely be associated with disturbed menstrual function. Thyroxine is essential to normal cellular metabolism, and this may be its only mode of action on the ovary. A study of twenty-seven patients having amenorrhea or marked oligomenorrhea failed to disclose any organic disease to which the menstrual disturbance could be attributed. Basal metabolic rates were raised by the administration of an active preparation of desiccated thyroid administered orally each day. After a suitable dosage had been determined for a metabolic rate of from —5 to —8 per cent, the patients were allowed to return home to continue the treatment with desiccated thyroid. The condition of thirteen of the twenty-two patients having amenorrhea was improved after treatment. The improvement of most patients was marked, and the menstrual periods of seven were reestablished to normal intervals and in normal amounts. The longest duration of amenorrhea of any patient who was better after treatment was one year. Of the five patients having oligomenorrhea, two were better after treatment, two were not helped, and one had a more scanty menstrual flow. Twenty-five of the twenty-seven patients complained of fatigue or functional disturbances, which, in many instances, had preceded the menstrual disturbances by years, twenty-one of which expressed themselves as in better general health after elevation of the basal metabolic rate.

American Journal of Public Health, New York

24: 187-302 (March) 1934

Germany's Sterilization Program. W. W. Peter, White Plains, N. Y. —p. 187.
Practical Limitations in the Attempt to Control Enteric Disease by the Examination of Specimens Collected Without Regard to Clinical History or Epidemiologic Evidence. Ruth Gilbert and Marion B. Coleman, Albany, N. Y.—p. 192.
Protein, Minerals and Vitamins of Evaporated Milk. F. E. Rice, Chicago.—p. 194.
Need for Methods for the Bacteriologic Examination of Crustacea. A. C. Hunter, Washington, D. C.—p. 199.
Suggested Laboratory Procedures for Use in Determining the Cause of Food Poisoning. S. A. Koser, Chicago.—p. 203.
Reaching the Negro Community. M. O. Bousfield, Chicago.—p. 209.
The New City Appraisal Form. G. T. Palmer, New York.—p. 216.
Relationship of Shigella Alkalescens to Other Members of the Shigella Group. H. Welch and F. L. Mickle, Hartford, Conn.—p. 219.
Examination of Fermented Foods by Laboratory Methods. C. S. Pederson, Geneva, N. Y.—p. 229.
*Effect of Age, Dilution and Dosage on Immunizing Value of Diphtheria Toxoid. W. Levin and Helen A. Cary, Portland, Ore.—p. 251.

Diphtheria Toxoid.—Levin and Cary gave a preliminary Schick test to 1,016 children, 84 per cent of whom were in the 4 to 10 year age group. None of these children, so far as could be determined, had had diphtheria or had been immunized against it. Three 0.5 cc. injections of undiluted toxoid at weekly intervals gave 98 per cent of immunities. Practically no reactions were obtained with this size dose.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

31: 289-432 (March) 1934

Bronchography in Amplification of Roentgen Film of Chronic Pulmonary Tuberculosis, with Especial Reference to Surgical Indications. H. Neuhof, New York.—p. 289.
Bronchography, an Essential and Safe Adjunct in the Study of Pulmonary Tuberculosis. J. E. Murphy, Secaucus, N. J.—p. 301.
Bronchography in Relation to Pathology of Pulmonary Tuberculosis. B. P. Potter, Secaucus, N. J.—p. 308.
Round Foci Type of Pulmonary Tuberculosis. S. Bruck, Philadelphia. —p. 319.
*The Inverse Ratio in the Roentgen Visualization of Bronchi and Alveoli After the Injection of Contrast Mediums. R. A. Bendove and B. S. Gershwin, New York.—p. 323.
Bronchopulmonary Segment, with Especial Reference to Putrid Lung Abscess: Anatomic and Roentgenographic Aspects. A. Glass, New York.—p. 328.
Syphilitic Gumma of the Lung: Case Report. E. Freedman and C. S. Higley, Cleveland.—p. 333.
Pathologic Appendix. J. Felsen, New York.—p. 340.
Intrapelvic Protrusion of the Acetabulum (Otto's Pelvis). B. H. Nichols and E. L. Shiflett, Cleveland.—p. 346.
Roentgen Findings in Ainhum. L. J. Friedman, New York.—p. 349.
*Roentgen Treatment of Benign Hypertrophy of the Prostate Gland. B. S. Barringer, A. L. Dean Jr., R. E. Herendeen and J. J. Duffy, New York.—p. 350.
Studies in Diagnosis and Treatment of Teratoma Testis. R. S. Ferguson, New York.—p. 356.
Management of Cancer of the Mouth and Cervical Lymphatics. D. Quick, New York.—p. 366.
Comparison of High Voltage Roentgen-Ray Tubes. L. S. Taylor, G. Singer and C. F. Stoneburner, Washington, D. C.—p. 378.

Visualization of Bronchi and Alveoli.—Bendove and Gershwin state that, when iodized oil is injected intratracheally, it tends to delineate the bronchi and alveoli in an inverse proportion; i. e., the more the alveoli are outlined, the less the bronchi are visible, and vice versa. This inverse ratio in the visibility of the iodized bronchi and alveoli is of diagnostic significance. In a normal lung the outlined alveolar element predominates, overshadowing all the bronchi, and the roentgenographic image simulates a tree in midsummer. Diseased and dilated bronchi retain most of the injected material, and few, if any, of the alveoli in the corresponding territory will be delineated on the roentgenogram. In cases of extreme cylindric dilatation, the filled bronchi resemble the branches of a tree in winter with no remnant of the former foliage. The absence of the alveolar leaves may be general or localized, depending on the extent of the bronchial dilatations. Any bronchus that retains the iodized oil fifteen minutes after its injection is to be considered functionally impaired, irrespective of its morphologic appearance. In order to maintain definite standards of comparison, it is advisable always to inject 20 cc. of the iodized oil and to outline only one lobe at a time.

Roentgen Treatment of Benign Hypertrophy of the Prostate Gland.—Barringer and his associates tried high voltage roentgen therapy in thirty-four cases of hypertrophied prostates. They observed that, in 30 per cent of cases which otherwise would come to operation, high voltage roentgen irradiation reduces the residual urine and controls the symptoms. The edematous prostate entirely loses its edema under the treatment. A complete cystoscopic examination of the prostate is essential to determine the type of prostatic hypertrophy present. It is probable that the "simple bilateral lobe hypertrophy" so well described by Randall is the type most suited to respond to this therapy. In those patients, in whom for one reason or another, such as poor heart, advanced age, bad kidney function, operative intervention of any kind is contraindicated, high voltage roentgen irradiation should be the therapy of choice. The technic of administering the dose selected has varied with the patient, factors that enter into the selection of the dose and the method of administering it. The dosage at each exposure amounted to about 200 roentgens. The same series of treatments were repeated after an interval of ten days. The third cycle, or even the fourth, is decided on after later urologic examinations. A small dosage has been given to decrease reactions. Repeated doses are given for the theoretical reason that this method produces more fibrosis.

American Journal of Surgery, New York

22: 399-602 (March) 1934

Hyperfunction of Thyroid Gland: Recent Developments in Clinical Recognition and Surgical Treatment. J. deJ. Pemberton and S. F. Haines, Rochester, Minn.—p. 399.
*Resection of Presacral Nerve for Dysmenorrhea: Based on Favorable Results in a Series of Twenty-One Cases. J. L. DeCourcy, Cincinnati.—p. 408.
Carcinoma of the Cervix Uteri: Diagnosis and Treatment. L. Frank, Louisville, Ky.—p. 413.
Surgery of the Ovary. Sophia J. Kleegman, New York.—p. 419.
Effects of Alpha-Lobelien on Respiration: Experimental Study. R. A. Wilson and M. A. Torrey, Brooklyn.—p. 426.
The Past and Present in Genito-Urinary Carcinoma: Bladder, Prostate, Testicle, Penis. B. S. Barringer, New York.—p. 438.
Rupture of Urinary Bladder. L. M. Bogart, Flint, Mich.—p. 442.
Prostatic Resections, with Especial Reference to Poor Surgical Risks. A. E. Goldstein and C. S. Levy, Baltimore.—p. 452.
Urinary Antiseptics in Relation to Fluid Intake. N. F. Miller and C. C. Chu, Ann Arbor, Mich.—p. 457.
Anorectal Fistulas. F. C. Smith, Philadelphia.—p. 474.
Surgical Significance of Spontaneous Hematoma of Rectus Abdominis Muscle. R. B. McCarty, Riverside, Calif.—p. 480.
*Concept of Pyloric Balance in Ileus Treated by Continuous Suction from Stomach. W. Bartlett Jr., St. Louis.—p. 484.
Geographic Distribution of Peptic Ulcer. H. Müller, Detroit.—p. 497.
*Specific Vaccine in Treatment of Peptic Ulcer. J. W. Hinton, New York.—p. 504.
Gallbladder Surgery: Observations from a Series of Cases as to the Advantages of Early Operations. H. Basheln, New York.—p. 506.
Blood Changes Following Splenectomy. R. MacDonald, Chicago.—p. 514.
Phlebitis. D. C. Geist, Philadelphia.—p. 519.
Application of Principles of Local Anesthesia to Treatment of Peripheral Nerve Manifestations. R. P. Caron, Minneapolis.—p. 521.
Malignancy of the Tonsil. W. E. Costolow, Los Angeles.—p. 528.
Actinomycotic Focal Infection with Metastases to the Os Pubis. R. B. Haining and F. D. Hankins, Los Angeles.—p. 532.
Pneumonography: Its Technic, Indications and Contraindications. M. S. Lloyd and L. T. Perrault, New York.—p. 537.
*Head Immobilization for Skull Radiography: Simple Method in Posterior Anterior Position. G. E. Moore, Antigo, Wis.—p. 545.
Pulmonary Abscess. J. A. Halpin, J. W. Ellis and H. L. Puckett, Lee, Mass.—p. 547.
New Method of Suturing: Traumatic or Operative Wounds of Gastro-Intestinal Tract. A. Yiatrakos, Athens, Greece.—p. 551.
Modified Sling for Fractures About the Elbow. S. Vernon, Willimantic, Conn.—p. 555.

Resection of Presacral Nerve for Dysmenorrhea.—DeCourcy resected the presacral nerve in twenty-one cases for the relief of dysmenorrhea. The immediate results of the procedure have been excellent, and in no instance has the relief of pain failed. Menstruation regularly takes place within forty-eight to seventy-two hours after operation, no matter at what time in the menstrual cycle it has been performed. Most of the patients have had to be catheterized for two or three days, but the inhibition of bladder function has been no more marked than after any other gynecologic operation. None of the author's patients have had any difficulty with the bladder afterward, although the possibility of some interference with vesical function has always been kept in mind. Several of his patients have since become pregnant, demonstrating that there is no interference with child bearing.

Ileus Treated by Continuous Suction from Stomach.—Since 1931 Bartlett has employed continuous positive suction of the stomach in eighteen patients having ileus. Suction was used as the only curative measure in some and as an adjunct to enterostomy in others. In every patient but one who developed ileus following an intra-abdominal operation evidence was found for the existence of peritonitis as the exciting factor by characteristic changes in the differential leukocyte count (Schilling), a clinical course, which was febrile, at least in part, and physical findings or postmortem observations when death ensued. Dilatation of the stomach was a relatively late phenomenon, nausea and slight abdominal distention usually having already occurred, while intermittent aspiration of the stomach revealed only small amounts of fluid and gas and while the stomach continued to pass ingested fluid over the pylorus. When considerable handling of the abdominal viscera has been necessary, ileus appears usually within twenty-four hours of the resumption of fluids by mouth, and it disappears rapidly after institution of continuous suction. In cases in which trauma and motor inhibition are minimal factors, ileus develops after forty-eight or seventy-two hours as intraperitoneal infection becomes manifest and recedes more slowly after treatment is started. The author feels it is undesirable that the nasal catheter pass through the pylorus into the duodenum. He urges the employment of continuous positive suction of the stomach as a curative measure. He has simplified Ward's apparatus for continuous suction. This apparatus permits one to know with mathematical accuracy the gastro-intestinal status of the patient, so far as function is concerned. Increasing experience with this treatment indicates that there is a large group of patients with intestinal obstruction in which the risk of death is far less if decompression of the intestine is brought about by continuous suction of the stomach than if operation is performed within more than a few hours of the onset.

Specific Vaccine in Treatment of Peptic Ulcer.—During two years Hinton has treated seventy-two cases with intravenous vaccine, which included nine cases of acute perforation and eight in which operation was performed for chronic ulcers, leaving fifty-five nonoperative cases under treatment, and these were more favorably selected as they did not necessarily represent medical failures from other types of conservative treatment; of these, six were gastric, three pyloric and forty-six duodenal lesions. Cases in which the epigastric pain returned or was intensified for twenty-four hours following the injection offered the most favorable prognosis. The diet has been restricted and the author feels that it is best to place the patient on an ambulatory Sippy regimen in conjunction with the vaccine administration. In deciding the good results of the method he relies exclusively on symptomatic relief from pain, based on frequent visits to the clinic. He is sure that Saunders' vaccine has a definite place in the treatment of peptic ulcer.

Head Immobilization for Skull Roentgenography.—Moore points out that the only equipment necessary to immobilize the head completely is two cushions, small enough so as not to obscure too much of the head, and stuffed with soft material packed tightly so as to make the cushions firm. When the patient is placed on the table with the face over the Bucky diaphragm, the arms are extended forward. The head is then placed in the desired position and following this the cushions are placed one on each side of the head. The arms are then drawn mediad and the forearms crossed. This brings the upper arms snugly against the cushions and they in turn press these cushions firmly against the head. The hands then grasp the opposite forearms, producing a stable and comfortable position.

American Review of Tuberculosis, New York

29: 249-372 (March) 1934

Relation of Ductless Glands to Incidence and Development of Tuberculosis. H. Lisser, San Francisco.—p. 249.
Extrapleural Paraffin Pneumonolysis for Phthisis. R. B. McIndoe, Howell, Mich., and J. Alexander, Ann Arbor, Mich.—p. 270.
Bilateral Collapse Therapy in Pulmonary Tuberculosis. W. C. Pollock, Denver.—p. 284.
Pathologic Findings and Pathogenesis of Congenital Tuberculosis. M. Siegel, Vienna, Austria.—p. 297.
Topographic Localization of Pulmonary Lesions. A. J. Hruby and M. Joannides, Chicago.—p. 310.
Displacement of Intrathoracic Viscera Resulting from Pathologic Processes in the Lung: Analysis of Causes of Diaphragmatic Rise, Dextroposition and Sinistroposition of the Heart and Mediastinum. M. Joannides, Chicago.—p. 313.
Behavior of Pleural Effusion in Hydropneumothorax. M. Joannides, Chicago.—p. 329.
*Blood Pressure Variations in Tuberculosis: Statistical Study of Range of Arterial Tension. E. Bunta, Chicago.—p. 335.
Spontaneous Pneumothorax: Report of Thirty-One Cases. Elizabeth A. Leggett, J. A. Myers and Ida Levine, Minneapolis.—p. 348.
Clinical Features of Pulmonary Tuberculosis: Clinical Analysis of One Thousand and Ninety-Nine Consecutive Cases Discharged from the Cook County Hospital Tuberculosis Wards During 1932. E. B. Freilich and O. B. Ragins, Chicago.—p. 362.
Successful Method of Cultivating Tubercle Bacilli. M. E. Cowen and E. J. Henderson, Cresson, Pa.—p. 368.

Blood Pressure Variations in Tuberculosis.—Bunta made a total of 3,411 blood pressure determinations on 2,915 patients. Of the 1,671 nontuberculous subjects, free from signs of cardiovascular or nephritic disease, the systolic measurements varied from a minimum of 70 to a maximum of 154 mm. of mercury. The mean pressure was 112 mm. and the standard deviation was 5.3 mm., representing a normal systolic range of from 107 to 117 mm. of mercury. Diastolic readings varied from 40 to 100 mm. of mercury. The mean pressure was 72 mm. and the standard deviation was 3.1 mm., defining a

normal diastolic pressure range of from 69 to 75 mm of mercury. Pulse pressures varied from 20 to 70 mm., the average being 42 mm. with a deviation of 3 mm. of mercury. Normal pulse pressure, therefore, ranged from 39 to 45 mm. of mercury. Of the 1,244 patients comprising the tuberculosis group the systolic pressures varied from a minimum of 60 mm. to a maximum of 276 mm. of mercury. The mean pressure was 112 mm. and the standard deviation was 21 mm., representing an average systolic pressure ranging from 91 to 133 mm. of mercury. Diastolic readings varied from 30 to 152 mm. of mercury. The mean pressure was 72 mm. and the standard deviation was 7.6 mm., defining an average diastolic range of from 64 to 80 mm. of mercury Pulse pressures varied from 10 to 146 mm. of mercury. The mean pressure was 37 mm. and the standard deviation was 7.7 mm., describing an average pulse pressure range of from 29 to 45 mm. of mercury.

Anatomical Record, Philadelphia

58: 107-216 (Jan. 25) 1934

Effect of Growth Hormone on Body and Tail Lengths. H. S. Rubinstein and L. J. Kolodner, Baltimore.—p. 107.

Ectopic Submaxillary Ostium Near the Isthmus of the Fauces. W. H. Waller, Ithaca, N. Y.—p. 111.

Para-Esophageal Recess of the Diaphragm: Case. R. Fraser, Dunedin, New Zealand.—p. 119.

Early Relation of Auditory Vesicle to Ectoderm in Human Embryos. B. J. Anson and W. T. Black Jr., Chicago.—p. 127.

*Studies on Effect of Pregnancy on the Ovary. H. Selye, J. B. Collip and D. L. Thomson, Montreal.—p. 139.

*Responses of the Reproductive System of Hypophysectomized and Normal Rats to Injections of Pregnancy-Urine Extracts: I. The Male. P. E. Smith and S. L. Leonard, New York.—p. 145.

*Id.: II. The Female. S. L. Leonard and P. E. Smith, New York.—p. 175.

The Effects of Ultraviolet Irradiation on Rachitic Chickens. G. M. Higgins, C. Sheard and R. M. Wilder, Rochester, Minn.—p. 205.

Effect of Pregnancy on the Ovary.—Selye and his associates state that both the gonadotropic hormone of the anterior pituitary and that obtained from the urine of pregnant women prevent the apperance of thecal deficiency cells in the ovaries of hypophysectomized rats. Hypophysectomy during gestation does not alter the corpora lutea of pregnancy in any way but does cause the thecal cells to show signs of hormone deficiency. Hence the unknown influence which maintains the structure and function of the corpora lutea of pregnancy is not identical with either of the known gonadotropic hormones.

Injection into Male Rats of Extracts of Pregnancy Urine.—Smith and Leonard injected extracts of pregnancy urine over varying periods (from ten to sixty days) in hypophysectomized and normal mature and immature male rats. The injections in the hypophysectomized males either maintained testicular weights or profoundly slowed the atrophy that characteristically takes place after pituitary ablation. The treatments invariably produced an enlargement of the accessory reproductive organs and a hypertrophy of the interstitial tissue both in the normal and in the hypophysectomized males. In some of the normal animals this enlargement persisted for the duration of the injections; in others a regression of the accessories took place (sixty-two days). In all the hypophysectomized animals there was a marked regression of the accessories and the interstitial tissue by the thirtieth day of treatment. In mature hypophysectomized rats, injections maintained spermatogenesis, mating and fertility for the duration of the injections. In immature hypophysectomized rats, the development of the tubules continued and spermatids but not spermatozoa formed, though none were present at the time of operation. In both mature and immature hypophysectomized rats, injections begun after a period of from twenty to seventy-five days following operation induced a relatively great increase in the weight of the testicles, an enlargement of the tubules and an increase in the activity of the germinal epithelium. In only one of four treated animals were spermatids formed. The injections did not hasten maturity in normal males. The tubules were not injured in either the mature or the immature rats In the mature males intratubular columns of typical spermatogenic cells were infrequently found. The treatments did not interfere with mating or fertility.

Injections into Female Rats of Extracts of Pregnancy Urine.—Leonard and Smith observed the effect of injections of pregnancy urine on immature and mature hypophysectomized female rats. Treatment begun at the time of operation increased or maintained the weights of the ovaries for a time, though regression took place with prolonged injections. Postponed treatment caused an invariable increase in the weights of the ovaries. Follicular growth was not induced by the treatments. The interstitial and theca cells hypertrophied and became much like lutein cells, causing a structural homogeneity of the ovary. The hypertrophy did not persist when the treatments were prolonged or stopped. It persisted, however, in certain newly formed bodies which appear to be structurally identical with corpora lutea. Estrin was secreted by the ovaries in both the mature and the immature hypophysectomized animals injected immediately after the operation and in some of the postponed treatments. The effects induced by injections of pregnancy urine in hypophysectomized rats are dissimilar to those produced by anterior pituitary implants, the latter producing larger ovaries which contain normal and cystic follicles and larger corpora lutea. The effects of injection of pregnancy urine in hypophysectomized rats are also not the same as in normal rats, for in the latter there is a development of follicles, cysts and blood follicles. The pituitary sex hormone facilitates the action of pregnancy urine on the ovaries as shown by results obtained in partial hypophysectomies and in concurrent injections of anterior pituitary and pregnancy urine in hypophysectomized and in normal immature animals. The action of pregnancy blood serum is similar to that of the pregnancy urine extracts. Hypophysectomy followed by injections of pregnancy urine induces ovarian changes in rats which are strikingly similar, in many respects, to those produced by irradiation of the ovaries of adult mice.

Annals of Internal Medicine, Lancaster, Pa.

7: 1059-1200 (March) 1934

Significance of Hypertrophy and Hyperplasia of Parathyroid Glands in Rickets and Osteomalacia. R. M. Wilder, G. M. Higgins and C. Sheard, Rochester, Minn.—p. 1059.

Chronic Pericardial Effusion in Myxedema: Report of Case. E. B. Freeman, Baltimore.—p. 1070.

Effect of Calcium on Storage of Colloid in the Thyroid Gland. J. Klein, Chicago.—p. 1080.

Nomenclature of Disorders of Insulin Secretion: Diabetes Mellitus, Hyperinsulinism and Dysinsulinism: Analytic Review of Data Relevant to Classification and Terminology of Secretory Disorders of the Islands of Langerhans of the Pancreas. S. Harris, Birmingham, Ala. —p. 1084.

Obliterating Thrombosis of Pulmonary Arteries. W. M. Fowler, Iowa City.—p. 1101.

Parenteral Liver Therapy in Pernicious Anemia: Observations Covering Two Years of Continued Use. J. E. Connery and L. J. Goldwater, New York.—p. 1117.

Mucin in Treatment of Peptic Ulcer Associated with Renal and Hepatic Disease. A. B. Rivers and Frances R. Vanzant, Minneapolis.—p. 1122.

The Redundant Duodenum: Clinical Significance. T. H. Morrison and M. Feldman, Baltimore.—p. 1126.

*The Hereditary and Familial Factor in Hypochromic Anemia with Achlorhydria. W. H. Barrow, San Diego, Calif.—p. 1135.

*Tuberculoma of the Brain. M. Lewison, E. B. Freilich and O. B. Ragins, Chicago.—p. 1141.

The Hereditary Factor in Hypochromic Anemia with Achlorhydria.—Barrow states that a review of the literature and of the case histories of hypochromic anemia with achlorhydria indicates that there is a not uncommon association of this type of anemia with primary anemia in members of the same family. A family history of secondary anemia of undetermined type is occasionally found, but proved reported cases of achlorhydric anemia in more than one member of a family are rare. The author has found no record of more than two cases in one generation. Of possible importance from the point of view of etiology is the evidence of a familial form of achlorhydria, although there is no known relationship between this and achlorhydric anemia. The specific hematopoietic hormone of normal gastric juice recently demonstrated by Castle which is absent in pernicious anemia was found to be present in some cases of achlorhydric anemia. Nevertheless, nearly all contributors to the subject, from Faber to the most recent writers, advance the theory that the anemia is secondary to a gastric secretion deficiency which results in an interference with the maintenance of normal hematopoiesis. A case history of achlorhydric hypochromic anemia is presented with actual or presumptive evidence of the same type of anemia in the patient's five sisters and in her mother and mother's sisters. There is nothing in the history or physical or laboratory observations

of these patients to suggest a common factor of etiologic significance. A second family is reported in which there seems to be a tendency to secondary anemia, but only one case was of the achlorhydric achromic type. If these cases are related etiologically, there is again no indication as to what the etiologic factor may be. One may only conclude that this type of anemia is not uncommonly found in families in which there is evidence of primary or secondary anemia in other members of the same family.

Tuberculoma of the Brain.—In an analysis of 757 necropsies performed at the Cook County Hospital from 1917 to 1927 inclusive on patients who had died of tuberculosis, Lewison and his associates discovered twenty instances of tuberculoma of the brain. From the point of view of symptomatology the cases fall into two groups. In the first the symptoms are those of a space-occupying mass in the cranial cavity or spinal canal; i. e., the symptoms of increased intracranial pressure and those further localizing symptoms and signs that indicate the level of the lesion. In the second group of cases the most prominent clinical symptoms are those due to the coincident tuberculous meningitis; and these meningeal symptoms frequently completely mask the clinical evidences of the presence of tuberculoma. In seven cases the clinical diagnosis of tuberculous meningitis was made. In two instances tuberculoma of the brain was diagnosed. At necropsy meningitis was found in seventeen cases, in one a focal meningitis was reported and in two the meninges did not show any involvement. The sites in the brain at which the tuberculomas were found did not indicate any special predilection of this lesion for any certain area. There were eleven cases with one tuberculoma, four with two, two with three and three with multiple tuberculomas. In all cases tuberculous lesions were found in other organs of the body in addition to the lesions of the brain. The average age was 22.7 years: the youngest 15 months and the oldest 56 years. It was predominantly an adult group. There was an equal number of men and women in the group. There were sixteen cases in Negro patients, two in white and two in Mexicans.

Annals of Otol., Rhinol. and Laryngology, St. Louis

43: 1-320 (March) 1934. Partial Index

A Syndrome of Ear and Sinus Symptoms Dependent on Disturbed Function of Temporomandibular Joint. J. B. Costen, St. Louis.—p. 1.
Diffuse Cranial Osteomyelitis Complicating Frontal Sinusitis. O. J. Dixon, Kansas City, Mo.—p. 16.
Nerve Fibers of Spinal and Vagus Origin Associated with Cephalic Sympathetic Nerves. A. Kuntz, St. Louis.—p. 50.
Hypertonic Muscles of Neck as a Cause of Headache. W. Mitheefer, Cincinnati.—p. 67.
Advanced Methods in the Surgical Treatment of Facial Paralysis. A. B. Duel, New York.—p. 76.
*Clinical and Experimental Study of the Action of Saliva on Blood Coagulation and Wound Healing in Surgery of the Oral Cavity and Throat. M. S. Ersner, D. Myers and W. Ersner, Philadelphia.—p. 114.
Methods for Preparing and Studying Temporal Bone Specimens. J. J. Potter and D. M. Lierle, Iowa City.—p. 166.
Tracheotomy: Study of Two Hundred Consecutive Cases. F. A. Figi, Rochester, Minn.—p. 178.
Primary Actinomycosis of Nose with Extension to Pharynx, Hard and Soft Palate, and Cervical Vertebrae: Report of Case. Rea E. Ashley, San Francisco.—p. 248.
Hypothyroidism and Vasomotor Rhinitis. J. Forman, Columbus, Ohio.—p. 279.

Action of Saliva on Blood Coagulation and Wound Healing.—The Ersners and Myers show that saliva when added to blood in vitro produced in numerous trials a reduction of a blood coagulation time of from ten to fifteen minutes to one of from two to three minutes. The saliva, whether autogenous, exogenous, mixed from various individuals, centrifugated, using supernatant fluid or the sediment, has the same effect in producing a reduction of the coagulation time. Saliva that has been kept on ice from twenty-four to forty-eight hours or at room temperature for this length of time has the same effect in decreasing the coagulation time, showing again that whatever agent is present does not become inert. Saliva, after continued stimulation (petrolatum chewing), retained its coagulating power and the p_H of the saliva did not vary. Filtered saliva possesses the same coagulant action as whole saliva. The authors suggest that patients who are to undergo an operation be given sodium bicarbonate to neutralize gastric acidity and petrolatum to chew, or some other inert substance that will stimulate the salivary secretions, and be made to swallow this saliva, so that its presence will alkalize the gastric acidity as well as aid blood coagulation.

Annals of Surgery, Philadelphia

99: 401-560 (March) 1934

Jejunal Ulcer: Some Observations on Its Complications and Their Treatment. D. P. D. Wilkie, Edinburgh, Scotland.—p. 401.
*Osteochondritis Dissecans: Intra-Articular Osseocartilaginous Loose Bodies: Clinical Study Based on Ten Personally Observed Cases. F. M. Conway, New York.—p. 410.
Solitary Bone Cyst: Localized Form of Osteitis Fibrosa Cystica. B. L. Coley and N. L. Higinbotham, New York.—p. 432.
Posttraumatic Acute Bone Atrophy (Sudeck's Atrophy). F. B. Gurd, Montreal.—p. 449.
*Dislocation of Cervical Vertebrae: Report of Case of Complete Forward Dislocation of the Sixth Cervical Vertebra with Reduction by Forcible Traction and Full Recovery. D. Warshaw, New York.—p. 470.
Osteochondromatosis of Elbow. S. Kleinberg, New York.—p. 480.
Radial Paralysis Complicating Fracture and Dislocation in Upper Limb. E. S. Gurdjian and A. G. Goetz, Detroit.—p. 487.
Fracture of Capitellum of Humerus. W. E. Lee and T. J. Summey, Philadelphia.—p. 497.
Colles' Fracture of the Radius: Observations on One Hundred and Eighty-Eight Cases. K. M. Lewis, New York.—p. 510.
Pseudarthrosis of Hip Following Acute Infection of the Joint. W. J. Stewart, Columbia, Mo.—p. 515.

Osteochondritis Dissecans.—Of Conway's ten cases of osteochondritis dissecans, eight involved the knee and two the elbow. The condition is more often seen in men than in women. The average age is from 15 to 35 years. The symptoms in the order of frequency are pain, disability, swelling and the presence of a movable body. The roentgenogram is usually pathognomonic and stereoscopic views of the affected joints are invaluable in the determination of the amount and degree of articular damage. The treatment is arthrotomy with the removal of the loose fragments, and the optimal time for surgical intervention is during the period of demarcation before any great degree of synovial change has occurred.

Dislocation of Cervical Vertebrae.—Warshaw reports a case of complete forward dislocation in which full reduction of the dislocation was secured by forcible traction and counter-traction under anesthesia without subsequent immobilization. There was no injury of the spinal cord. A few peripheral nerves were involved. The author believes that the fact that the patient made a permanent recovery without any form of immobilization is of interest, in view of the prevailing view that hyperextension in some form of apparatus or plaster is necessary over a long period of time.

Archives of Internal Medicine, Chicago

53: 325-480 (March) 1934

Relationship Between Anatomic Changes in Knee Joint with Advancing Age and Degenerative Arthritis. C. S. Keefer, F. Parker Jr., W. K. Myers and R. L. Irwin, Boston.—p. 325.
Studies of the Blood in Normal Pregnancy: III. Hemoglobin and Cell Volume Coefficients; Erythrocyte Volume, Hemoglobin Content and Concentration; Color, Volume and Saturation Indexes. W. J. Dieckmann, Chicago, and C. R. Wegner, St. Louis.—p. 345.
Id.: IV. Percentages and Grams Per Kilogram of Serum Protein and Fibrin and Variations in Total Amount of Each. W. J. Dieckmann, Chicago, and C. R. Wegner, St. Louis.—p. 353.
*A Comparison of the Development of the Specific Nodule of Silicosis. W. S. Lemon and W. H. Feldman, Rochester, Minn.—p. 367.
Lipoids and Lipoid Diseases: II. Xanthomatosis (Schüller-Christian's Type). D. E. Lichty, Ann Arbor, Mich.—p. 379.
Id.: III. Lipoid Content of Tissues in Schüller-Christian's Disease (Xanthomatosis) and Review of Literature on Lipoid Content of Human Tissues. D. M. Cowie and M. Catherine Magee, Ann Arbor, Mich.—p. 391.
*Arteritis of the Temporal Vessels: A Previously Undescribed Form. B. T. Horton, T. B. Magath and G. E. Brown, Rochester, Minn.—p. 400.
*Generalized Thrombo-Angiitis Obliterans: Report of Case with Involvement of Retinal Vessels and Suprarenal Infarction. W. Birnbaum, M. Prinzmetal and C. L. Connor, San Francisco.—p. 410.
Relation of Plasma Cholesterol to Obesity and to Some of the Complicating Degenerative Diseases (Diabetes Mellitus, Essential Hypertension, Osteo-Arthritis and Arteriosclerosis). M. Bruger and C. A. Poindexter, New York.—p. 423.
Muscular Dystrophy and Atrophy: Clinical and Biochemical Results Following the Oral Administration of Amino-Acids. C. J. Tripoli and H. H. Beard, New Orleans.—p. 435.
Bacteriologic Study of Throats in Rheumatic and Nonrheumatic Fever, with Especial Reference to Hemolytic Streptococci. I. Weinstein and Norma C. Styron, New York.—p. 453.

The Development of the Specific Nodule of Silicosis.—To study the morphologic reactions provoked in the lung by particulate silica and by bacilli of tuberculosis, Lemon and

Feldman gave intratracheal injections to two series of rabbits. The animals were killed at intervals of from four hours to four weeks after receiving the respective inoculums, and the cellular response was studied histologically. The character of the cellular response to the irritative influences of particulate silica and to bacilli of tuberculosis was essentially the same; both promoted the formation of characteristic tubercles. The properties of the provocative agent responsible for the production of the silicotic tubercle precluded the formation of a structure characterized by continuous progression. This contrasts markedly with that formed as a consequence of the injection of bacilli of tuberculosis, which is usually of a progressive, destructive nature. The similarity of the structural unit or tubercle invoked experimentally in response to particles of silica and to bacilli of tuberculosis was so striking as to make their certain differential identification impossible by ordinary morphologic criteria. Although the pathologic characteristics of the two processes were practically identical during the early period of cellular progression, significant structural differences became evident as the duration of the diseases was extended.

Arteritis of the Temporal Vessels.—Horton and his associates observed a woman aged 55 and a man aged 68 who complained of fever, weakness, anorexia, loss of weight, anemia, mild leukocytosis and painful, tender areas over the scalp and along the temporal vessels. The symptoms had been present from four to six weeks. Localized periarteritis and arteritis were present in each case. Study of the affected arteries indicated that the lesion probably began as periarteritis of a small segment of the artery. When the artery was palpated at this stage, segments from 1 to 2 cm. in length were tender but pulsations were still present. What apparently happened was that the process subsided when it reached this stage, leaving the wall of the vessel thickened but patent, or the process continued, spreading into the surrounding tissue as well as to the media and intima, with thrombosis of the involved segment. Microscopic sections of the blood vessels removed for biopsy disclosed identical lesions. Both patients apparently recovered completely from the local condition, although one died approximately two years later from congestive heart failure and renal insufficiency. The bacteriologic studies were inconclusive. They believe that this report may represent a new clinical syndrome the etiology of which is still obscure.

Thrombo-Angiitis Obliterans with Suprarenal Infarction.—Birnbaum and his associates present a case of generalized vascular disease, probably early thrombo-angiitis obliterans, in which necropsy was possible early in the course because of the involvement of vital structures (the suprarenals). Involvement of the cerebral, retinal, pulmonary, coronary, mesenteric, suprarenal, pancreatic, duodenal, hepatic, renal and prostatic vessels and of the vessels of the extremities was found. The clinical manifestations of the changes and of the suprarenal apoplexy in this case are discussed. The possibility that thrombo-angiitis obliterans is more frequently a generalized disease is pointed out.

Archives of Ophthalmology, Chicago

11: 389-590 (March) 1934

Recession of Levator Muscle for Lagophthalmos in Exophthalmic Goiter. I. Goldstein, New York.—p. 389.
Anomalies of the Ocular Muscles: Symptoms and Diagnosis, Evidences of Paralysis and Spasm. A. Duane, New York.—p. 394.
*Surgical Treatment of Concomitant Squint. O. Wilkinson, Washington, D. C.—p. 423.
Some Possibilities of Orthoptic Training: Comparative Study of a Control Group and a Treated Group of Patients with Squint, with Remarks Concerning Technic Used in Orthoptic Training. G. P. Guibor, Chicago.—p. 433.
Clinical Determination of the Light Threshold. E. B. Spaeth, Philadelphia.—p. 462.
Biastigmatism. A. S. Percival, Shenley, Woking, England.—p. 486.
Periscopic Spectacles. A. S. Percival, Shenley, Woking, England.—p. 490.
Optic Neuromyelitis: Report of Two Cases. R. A. Perritt, Chicago.—p. 492.
Velonoscopy Check Test for Astigmatism. J. I. Pascal, New York.—p. 498.

Surgical Treatment of Concomitant Squint.—Wilkinson presents his operations for concomitant squint in which all shortenings or recessions are accurately measured by calipers. In recession operations the position of the scleral stitch is measured and marked in order that accurate placing of the stitch may be accomplished. In the resection operation he uses a central mattress suture similar to that described by Snellen, Ewing and Lancaster. This is brought out through the capsule and conjunctiva, as suggested by Duverger. This mattress suture secures a much stronger anchorage than is obtained by the Reese operation. The author has also devised a recession operation in which he does not use a scleral stitch and which he feels is safe and at the same time the most simple recession operation possible. He has performed twenty-five of these operations during the past two years and so far his results have been good. About 12 degrees of correction can be secured with a 4 or 4.5 mm. recession, and the cosmetic and functional results are excellent.

Archives of Pathology, Chicago

17: 291-452 (March) 1934

*Histology of Adenoma of the Islets of Langerhans. J. L. O'Leary and N. Womack, St. Louis.—p. 291.
Malformations of the Heart of the New-Born: Congenital Lesions Suggestive of an Inflammatory Origin. Grete Stobr, New York.—p. 311.
Colloid-Chemical Properties of Some Protein-Amine Compounds. M. H. Fischer, W. J. Suer and A. R. Johnston, Cincinnati.—p. 324.
Changes in the Myocardium of Rabbits from Augmenting the Heart Rate Mechanically and from Induced Hyperthyroidism. F. R. Menne, O. N. Jones and N. W. Jones, Portland, Ore.—p. 333.
Experimental Intimal Sclerosis of the Coronary Arteries of Rats. A. W. Ham and M. D. Lewis, Toronto.—p. 356.
*Hepatic and Bile Duct Changes from Obstruction of Common Bile Duct Due to Pancreatic Carcinoma. M. M. Lieber and H. L. Stewart, Philadelphia.—p. 362.
Influence of Extract of Anterior Pituitary on Autotransplanted and Homeotransplanted Thyroid. M. Silberberg, Breslau, Germany.—p. 381.

Histology of Adenoma of Islets of Langerhans.—O'Leary and Womack verified five tumors of the pancreas, operatively removed, as islet cell adenomas, verifying in each case the preoperative diagnosis of hypoglycemia due to suspected tumor. Although the adenomas varied in size, gross appearance and apparent age, the majority cell type of each was closely allied to the beta cells of the normal islets of Langerhans but possessed definite tumor characteristics. In only one of the five tumors was there evidence of a malignant process. The staining reactions of the specific cytoplasmic granules in the majority of tumor cells of each deviated sufficiently from those of the beta cells of normal human islets to lend support to the hypothesis of dysinsulinism. In none of the cases did the histologic picture of the islets of Langerhans of the pancreas containing the tumor indicate the suppression of function that might be expected to parallel the prolonged secretion of excessive amounts of the hypoglycemic hormone.

Hepatic Changes from Obstruction of Common Duct.—Lieber and Stewart describe the changes in the hepatic and bile ducts resulting from obstruction to the common bile duct by carcinoma of the head of the pancreas and submit evidence showing that cirrhosis may result from uncomplicated or noninfectious biliary stasis. The biliary conducting system undergoes a tremendous volumetric increase, with corresponding stretching and thinning of its walls. The process extends uniformly into the branches of the fourth and fifth orders. The vasa aberrantia and parietal sacculi become effaced. The canaliculi are distended with bile thrombi, many of which remain in place, although others are extruded into the tissue spaces and sinusoids, where they may be phagocytosed by Kupffer cells and macrophages. Bile pigment in the form of granules or droplets and in colloidal suspension may be found, chiefly in the cells of the central portions of the lobule. Regressive lesions are present as mild and localized degenerative changes involving the hepatic cells about the central vein, as nonpigmented focal midzonal areas of necrosis, and as deeply pigmented biliary necroses occurring either in the outer portion of the lobule or within the portal radicle. The intrahepatic ducts elongate and become tortuous, and they show, in addition, a true proliferation. A new formation of connective tissue occurs simultaneously with the changes in the bile ducts until after the second month, when a rapid, independent and progressive proliferation takes place, resulting in a well marked deposit of connective tissue, which is interlobular, intralobular and, in long-standing cases, even perilobular in distribution. The hepatic lobules show a corresponding reduction in size

without much architectural alteration except at the peripheries, where atrophy may become well marked. The walls of the branches of the hepatic artery undergo hypertrophy and those of the branches of the hepatic vein and to a less extent of the portal veins show a new formation of fibrous tissue. The liver possesses little or no regenerative ability in the face of total stasis.

Endocrinology, Los Angeles

18: 161-316 (March-April) 1934

The Adrenal Cortex and Electrolyte Metabolism. R. L. Zwemer, New York.—p. 161.
Effects of Sodium Bromide and Other Haloid Salts on the Weight and Structure of the Thyroid Gland in the Albino Rat. A. S. Hamilton, Minneapolis.—p. 170.
Effects of Interrenal Function on Fat Metabolism and Tissue Respiration. M. A. Goldzieher, Brooklyn.—p. 179.
Secretin: Its Influence on the Amount of Hemoglobin in the Circulating Blood. J. Ferguson, Edmonton, Alta.—p. 188.
Anterior Pituitary Hormone and Tumor Growth. W. Saphir, Chicago. —p. 191.
Experimental Colloid Goiter. C. A. Hellwig, Wichita, Kan.—p. 197.
Menstrual Response to Luteinizing Extract of Pregnancy Urine. D. P. Murphy, Rosemary Shoemaker and Marion Rea, Philadelphia.—p. 203.
Effects of Introduction of Blood from Bred Rabbits on Immature Rabbits. Charlotte Dumont, F. E. D'Amour and R. G. Gustavson, Denver.—p. 206.
Quantitative Hormone Requirements. J. P. Pratt, Detroit.—p. 211.
Endocrine Statistics from the Southeast. J. K. Fancher, Atlanta, Ga. —p. 221.
The Effects of Various Compounds of Thyroxine on the Basal Metabolism. W. O. Thompson, Phebe K. Thompson, S. G. Taylor 3d, J. M. Alper and Lois F. N. Dickie, Chicago.—p. 228.
*Treatment of Pituitary Infantilism with Antuitrin: Report of Case. M. M. Goldberg, New Orleans.—p. 233.
Attempt to Duplicate Certain Hormone Responses by Means of Drugs. M. C. D'Amour, University, Ala.—p. 235.
Nervous and Hormonal Factors in Lactation. H. Selye, J. B. Collip and D. L. Thomson, Montreal.—p. 237.
Ovarian Stimulation by Adrenal Extracts. L. E. Casida and A. A. Hellbaum, Madison, Wis.—p. 249.
Effects of Cod Liver Oil on Basal Metabolism and on the Thyroid Gland. T. C. Sherwood, L. A. Toth and Katherine Carr, Lexington, Ky.—p. 254.
*Studies of the Adrenal Glands in Health and Disease. I. Diseases of the Adrenal Glands as Revealed in Twenty-Five Thousand Autopsies. J. H. Clark and L. G. Rowntree, Philadelphia.—p. 256.

Treatment of Pituitary Infantilism with Anterior Lobe Extract.—Goldberg reports the case of a boy of 17 who exhibited the cardinal features of pituitary infantilism. Coincident with a course of sixty-seven injections of a soluble extract from the anterior lobe of the pituitary the patient gained approximately 2 inches (5 cm.) in height and showed objective evidence of an increased sex drive as well as personal aggressiveness. During an interval of ten weeks when treatment was omitted no growth occurred.

Studies of Suprarenals.—Clark and Rowntree reviewed a series of 25,000 necropsies to determine the incidence of suprarenal disease. Beyond a surprising lack of interest in the suprarenals, as evidenced by mention of pathologic changes in only 925 instances, nothing noteworthy or definitely new came of the survey. In a limited number of cases, however, suggestive relationships were observed between chronic suprarenalitis and cardiorenal vascular disease and cortical atrophy associated with atrophy of the parenchymatous organs. The need for further investigation of tumors of the suprarenal is indicated to determine the cells of origin not only in those arising in the medulla but also in those cortical adenomas causing such marked changes in sexual characteristics.

Journal of Comparative Neurology, Philadelphia

59: 1-174 (Feb. 15) 1934

Size of Man's Brain as Indicated by Skull Capacity. G. von Bonin, Chicago.—p. 1.
Some Observations on Early Development of Vestibular Nuclei in the White Rat. G. A. Walker.—p. 29.
Determination of Number of Nerve Fibers in the Eighth Thoracic and Largest Lumbar Ventral Roots of the Albino Rat. D. Duncan, Buffalo.—p. 47.
Effect of Central Nervous System on Responses to Light in Eisenia Foetida, Sav. C. L. Prosser, Baltimore.—p. 61.
Amphibian Forebrain: IX. Neuropil and Other Interstitial Nervous Tissue. C. J. Herrick, Chicago.—p. 93.
Are There Efferent Fibers in Dorsal Roots? J. C. Hinsey.—p. 117.
Myelogeny of Cat as Related to Development of Fiber Tracts and Prenatal Behavior Patterns. W. F. Windle, M. W. Fish and J. E. O'Donnell, Chicago.—p. 139.
Cells and Fibers in Spinal Nerves: II. Study of C2, C6, T4, T9, L3, S2 and S5 in Man. H. A. Davenport and R. T. Bothe, Chicago. —p. 167.

Journal of Infectious Diseases, Chicago

54: 149-280 (March-April) 1934

Phases of the Metabolism of Trichophyton Interdigitale Priestley. D. R. Goddard, Berkeley, Calif.—p. 149.
Growth-Stimulating Properties of Cystine and Tryptophan. W. Burrows, Chicago.—p. 164.
Passage of Bovine Brucella Through Swine. H. L. Gilman, C. H. Milks and R. R. Birch, Ithaca, N. Y.—p. 171.
Diphtheria Field Cultures: Comparison of Their Growth on Wahby's and on Loeffler's Medium. Ellen Kimberly and Margaret Beattie, Berkeley, Calif.—p. 175.
*Immunologic Studies in Case of Typhoid with Relapses. G. D. C. Thompson and E. E. Ecker, Cleveland.—p. 177.
Microscopic Demonstration of Acid-Fast Bacilli in Tuberculous Filtrates and the Production of Tuberculous "Ultravirus" Infections in Guinea-Pigs. E. L. Walker and Marion A. Sweeney, San Francisco.—p. 182.
Suitability of Herrold's Egg Yolk Agar Medium for Isolation of the Bovine Tubercle Bacillus. W. H. Feldman, Rochester, Minn.—p. 194.
Bacterial Activity in Different Levels of the Intestine and in Isolated Segments of Small and Large Bowel in Monkeys and in Dogs. G. M. Dack and Elizabeth Petran, Chicago.—p. 204.
Mechanism of the Production of Diphtheria Toxin: Rôle of Sulphur Compounds and of Copper and Iron. G. Scheff and Irene P. Scheff, Pécs, Hungary.—p. 221.
Filtrability of the Acid-Fast Group. F. B. Cooper, Trudeau, N. Y.—p. 236.
Dissociation of Staphylococcus Aureus: II. Relation of Filtration to Dissociation of Staphylococcus Aureus. Rachel E. Hoffstadt and G. P. Youmans, Seattle.—p. 250.
Id.: III. Relation of Bacteriophage to the Dissociation of Staphylococcus Aureus. Rachel E. Hoffstadt and P. Almaden, Seattle.—p. 253.
Oxidation-Reduction Studies of Growth and Differentiation of Species of Brucella. C. D. Tuttle and I. F. Huddleson, East Lansing, Mich. —p. 259.
Determination of Oxidation-Reduction Potentials of Sterile Culture Mediums with the Graphite Electrode. C. D. Tuttle and I. F. Huddleson, East Lansing, Mich.—p. 273.

Immunologic Studies in Case of Typhoid with Relapses.—Thompson and Ecker cite a case of typhoid with two relapses, which is of interest because of a complete lack of agglutination and precipitation reactions in the course of the disease, while positive complement fixation and bacteriolytic and marked opsonic powers were observed, possibly indicating the final mechanisms of recovery These results also appear to indicate a plurality of antibodies, but it is to be emphasized that the antigen is complex and that the question of unity or plurality of antibodies can be solved only by the use of a single and pure antigen. The case is also of importance in that serum failed to dissociate the organism and no bacteriophage was isolated. The organisms isolated proved to be typical typhoid bacilli (cultural and serologic) and stimulated the production of the O type of agglutinins in the rabbit.

Laryngoscope, St. Louis

44: 173-260 (March) 1934

Treatment of Hay Fever and Its Allied Conditions by Ionization: Preliminary Report. H. L. Warwick, Fort Worth, Texas.—p. 173.
Alcoholic Injections into Inferior Nasal Turbinates for Amelioration of Symptoms of the Common Cold, Rose Fever, Hay Fever and Hay Fever Asthma. M. Metzenbaum, Cleveland.—p. 182.
The Common Cold and Its Treatment with Homiodin. A. A. Cinelli, New York.—p. 185.
Eye Diseases Caused by Sinusitis. N. P. Stauffer, Philadelphia.—p. 190.
Detection of Simulated Deafness. R. D. Russell, Chicago.—p. 201.
Test for Simulation of Deafness. C. Firestone, Seattle.—p. 211.
Unilateral Loss of Hearing for High Sounds Following Head Injury; Internal Ear Deafness; Probable Fracture of Left Temporal Bone; Temporary Paralysis of Facial Nerve: Case Presentation. P. S. Stout, Philadelphia.—p. 219.
Recurrent Mastoiditis with Petrositis, Temporosphenoidal Abscess, Large Epidural Abscess and Recovery: Report of Case. C. H. Smith, New York.—p. 223.
Atypical Mastoiditis: Case Report. H. Sporn, Brooklyn.—p. 223.
Suppurative Perforation of Lateral Sinus with Preoperative and Operative Hemorrhage. L. R. Effler, Toledo, Ohio.—p. 228.
Pterygomaxillary Abscess Associated with Acute Suppurative Otitis Media Simulating Zygomatic Mastoiditis: Report of Case. S. D. Greenfield, Brooklyn.—p. 232.
Tuberculous Larynx and Uphill Feeding. C. D. Van Wagenen, New York.—p. 240.
New Submucous Elevator. R. A. Luongo, Philadelphia.—p. 243.

Medical Annals of District of Columbia, Washington

3: 55-88 (March) 1934

Angina Pectoris: Consideration of Some of the Recent Literature, with Particular Reference to That Relating to Cause and Treatment. W. H. Resnik, Stamford, Conn.—p. 55.
Common Skin Diseases, with Especial Reference to Their Treatment. C. B. Campbell, Washington.—p. 64.
Complete Anuria of Six Days' Duration: Report of Case with Recovery. H. Einstein, Washington.—p. 70.
Fundamentals of Internal Medicine: Diseases of the Heart. W. M. Yater, Washington.—p. 72.

Nebraska State Medical Journal, Lincoln

19: 81-120 (March) 1934

Prostatic Resection. A. D. Munger, Lincoln.—p. 81.
Some Problems of the New-Born the First Few Days of Life. H. M. Jahr, Omaha.—p. 86.
Free Full-Thickness Skin Transplant. R. D. Schrock and H. F. Johnson, Omaha.—p. 91.
Six Hundred Kilovolt Radiation. R. L. Smith, Lincoln.—p. 94.
Etiologic Point of View in Diagnosis of Heart Disease. B. C. Russum, Omaha.—p. 97.
*Use of Blood Serum in Pregnancy Tests. H. E. Anderson, Omaha.—p. 98.
Allergic Manifestations of the Skin. L. J. Owen, Lincoln.—p. 101.

Use of Blood Serum in Pregnancy Tests.—By following the technic of Brown (using blood instead of urine in pregnancy tests) Anderson made an error of diagnosis in two of a hundred cases. In both cases a negative diagnosis was made instead of a positive one, which was later proved by clinical observation and delivery of full term fetuses. In both instances the animal was examined at the end of the twenty-four hour interval and the ovaries were examined grossly. However, if microscopic sections of these ovaries had been made at the time, it is likely that a positive diagnosis would have been possible. Numerous tests were run on the blood of a patient with a hydatidiform mole which gave a positive reading. These tests were done over a period of weeks after the patient had expelled grapelike vesicles on numerous occasions. After curettement had been done and symptoms of the mole had disappeared, another test was run which gave a negative reaction. The patient has had no subsequent symptoms referable to a chorion epithelioma. The author emphasizes the point that the anterior pituitary hormone is more concentrated in the blood serum per unit of volume than in the urine; therefore, that using blood serum instead of urine is more accurate, and that the modified technic of the Friedman test as described by Brown is practical, accurate and economical.

New England Journal of Medicine, Boston

210: 563-614 (March 15) 1934

Dental Health: Problem in Nutrition. J. Garland, Boston.—p. 563.
Consideration of Obstetric Management of Premature Labor. S. H. Clifford, Boston.—p. 570.
Medical History of Contraception. N. E. Himes, Hamilton, N. Y.—p. 576.
*Infestation with Diphyllobothrium Latum: Fish Tapeworm. E. K. F. Ronka, Boston.—p. 582.
Function of the General Practitioner in Public Health Work. H. W. Haggard, New Haven, Conn.—p. 584.

210: 615-668 (March 22) 1934

Cooperation in the Care of the Patient. E. P. Joslin, Boston.—p. 615.
Treatment of Acute Poliomyelitis with the Respirator. N. L. Crone, Boston.—p. 621.
Herniation of Fundus of Stomach Through the Esophageal Hiatus, with Especial Reference to Its Roentgenologic Diagnosis. L. B. Morrison, S. L. Morrison and J. H. Delaney, Boston.—p. 624.
Practical Features in Study and Treatment of Anxiety States. Esther Loring Richards, Baltimore.—p. 633.
Treatment of Peptic Ulcer Complicated by Hypersecretion. E. S. Emery Jr., Boston—p. 637.
Leukocytosis in Mental Disease. J. Kasanin, Howard, R. I.—p. 641.
Dr. Lucinda Susannah (Capen) Hall: The First Woman to Receive a Medical Degree from a New England Institution. F. C. Waite, Cleveland.—p. 644.

Infestation with Diphyllobothrium Latum.—Ronka presents a case of Diphyllobothrium estum infection in which, though the patient harbored the fish tapeworm in her intestine, she suffered no ill effects from the parasite. She presented a variety of clinical manifestations without anemia. The functional disorders were referable to the alimentary tract. A familial tendency of parasitism was exhibited. Man contracts the infection on consuming insufficiently cooked flesh of infected fish. The worm proceeds to develop within the intestinal tract and matures in five or six weeks after exposure, at the end of which time eggs first appear in the feces.

210: 669-722 (March 29) 1934

Examination of the Stomach by Means of a Flexible Gastroscope: Preliminary Report. E. B. Benedict, Boston.—p. 669.
Forced Grasping in Man and Its Localizing Significance. H. R. Viets, Boston.—p. 675.
Dislocation of the Shoulder: End Result Study. H. Rogers, Boston.—p. 679.
Use of Autogeneous Urinary "Proteose" in an Allergic Condition. P. G. Schulte, Boston.—p. 682.
Experimental Procedure Designed to Overcome Tubal Sterility. E. A. Herr, Waterbury, Conn.—p. 684.
*Aplastic Anemia Following Treatment of Lupus Erythematosus with Gold Sodium Thiosulphate, with Review of Literature of Hematologic Reactions Following Gold Therapy. W. Dameshek, Boston.—p. 687.
Neoplastic Factor in Chronic Ulcerative Colitis. J. C. M. Brust and J. A. Bargen, Rochester, Minn.—p. 692.
Neoplasms Originating in Ischiorectal Fossa, with Particular Reference to Sarcomas. W. M. Sheddden, Boston.—p. 696.

Aplastic Anemia Following Treatment with Gold Sodium Thiosulphate.—Dameshek reports the case of a woman presenting the typical lesions of lupus erythematosus who was given nineteen intravenous injections of gold sodium thiosulphate (totaling 1.7 Gm.) within about five months. At about the time of the last injection, symptoms referable to anemia developed and shortly thereafter she presented the typical features of aplastic anemia. She was given sixteen transfusions of blood within a period of nine months, but at no time did she show any signs of regenerative activity on the part of the bone marrow and finally died. Although there is no absolute evidence, it was believed that the drug was of etiologic significance.

New York State Journal of Medicine, New York

34: 221-268 (March 15) 1934

Relation of Biliary Dysfunction to Lithiasis. L. R. Whitaker, Boston.—p. 221.
Coronary Thrombosis: Some Points in the Diagnosis and Prognosis. R. H. Halsey, New York.—p. 237.
The Universities of the Middle Ages. D. Riesman, Philadelphia.—p. 242.
Irradiation of the Entire Body (Heublein Method). L. F. Craver and W. S. MacComb, New York.—p. 249.

Oklahoma State Medical Assn. Journal, Muskogee

27: 73-112 (March) 1934

Treatment of Diabetes Mellitus and Its Complications. S. Harris, Birmingham, Ala.—p. 73.
Personal Observations on Fractures About the Elbow. I. Cohn, New Orleans.—p. 92.

Pennsylvania Medical Journal, Harrisburg

37: 453-554 (March) 1934

Consideration of Resistance of Tissue Cells. W. deB. MacNider, Chapel Hill, N. C.—p. 453.
Fundamental Principles of Specific Calcium Therapy. A. Cantarow, Philadelphia.—p. 457.
Gastric and Duodenal Surgery: Adapting the Operation to the Patient. J. S. Rodman, Philadelphia.—p. 459.
Refinements in Technic of Thyroidectomy. H. L. Foss, Danville.—p. 464.
Maternal Mortality from Hemorrhage: Its Prevention in Pregnancy and Labor. P. B. Bland, Philadelphia.—p. 470.
Treatment of Anemia. J. K. Everhart, Pittsburgh.—p. 474.
Otitis Externa. R. J. Hunter, Philadelphia.—p. 477.
Genito-Urinary Tuberculosis: Uregenital Tuberculosis. T. R. Fetter, Philadelphia.—p. 483.
Id.: Renal Tuberculosis: Clinicopathologic Diagnosis. C. J. Bucher, Philadelphia.—p. 486.
Treatment of Gastric Cancer. J. H. Gibbon, Philadelphia.—p. 489.
Acute Suppurative Labyrinthitis Complicating Acute Otitis Media: Report of Case. J. Winston, Philadelphia.—p. 490.

Philippine Islands Med. Association Journal, Manila

14: 81-120 (March) 1934

Cellular Counts in the Spinal Fluid in Epidemic Encephalitis and Tuberculous Meningitis. L. Guerrero and P. Ignacio, Manila.—p. 81.
Is It Desirable, from the Standpoint of Nutrition, to Increase Filipino Sugar Consumption? I. Concepcion, Manila.—p. 90.
The Nerve of Expression. A. B. M. Sison, Manila.—p. 97.
Outline for a Malaria Survey. A. Ejercito, Manila.—p. 102.

Public Health Reports, Washington, D. C.

49: 321-356 (March 9) 1934

Frequency of Health Examinations in Nine Thousand Families, Based on Nation-Wide Periodic Canvasses, 1928-1931. S. D. Cullins.—p. 321.

49: 357-378 (March 16) 1934

Control of Amebic Dysentery. G. W. McCoy.—p. 359.
Notes on Experimental Rheumatic Fever. A. M. Stimson, O. F. Hedley and Edythe Rose.—p. 361.
Rocky Mountain Spotted Fever: Susceptibility of Mice. W. L. Jellison.—p. 363.

49: 379-418 (March 23) 1934

Viability of Endamoeba Histolytica and Endamoeba Coli: Effect of Drying. Bertha Kaplan Spector and Florence Buky.—p. 379.
The American Dog Tick, Dermacentor Variabilis, as a Host of Bacterium Tularense. C. B. Philip and W. L. Jellison.—p. 386.
Most Probable Numbers for Evaluation of Coli-Aerogenes Tests by Fermentation Tube Method. J. K. Hoskins.—p. 393.

40: 419-450 (March 30) 1934

Sickness Among Male Industrial Employees During Final Quarter of 1933. D. K. Brundage.—p. 419.
Malaria Among Drug Addicts in New York City: Epidemic of Estivo-Autumnal and Quartan Malaria Among Drug Addicts in New York City Transmitted by Use of Contaminated Hypodermic Syringes. M. Helpern.—p. 421.
Comparative Experiments on Spotted Fever and Boutonneuse Fever (1). G. E. Davis and R. R. Parker.—p. 423.

Radiology, St. Paul

22: 261-390 (March) 1934

Method of External Irradiation of the Axilla. J. J. Duffy and C. D. Lucas, New York.—p. 261.
*Comparative Analysis Between the Pathogenesis of Osteolytrophies and Bone Tumors. I. Levin, New York.—p. 266.
Roentgen Treatment of Hyperthyroidism. T. A. Groover and A. C. Christie, Washington, D. C.—p. 275.
The "Rise in Voltage" Effect of Therapy X-Ray Tubes. C. M. Slack and K. O. Smith, Bloomfield, N. J.—p. 280.
Hip Joint Changes in Hemophilia. M. Kahn, Baltimore.—p. 286.
Report of Committee on Standardization of X-Ray Measurements. Submitted for the Committee by L. S. Taylor, Chairman, Washington, D. C.—p. 289.
Significance of Osseous Changes in the Roentgenographic Diagnosis of Tumors of the Spinal Cord and Associated Soft Tissues. J. D. Camp, Rochester, Minn.—p. 295.
Standardization of Roentgen Dosage by Means of Methylene Blue H. W. Stenstrom and Anne Lohmann, Minneapolis.—p. 304.
Comparison of Photographic and Ionization Measures of Radiation Quality. O. Glasser and L. E. Rovner, Cleveland.—p. 309.
Study of Some Physiologic Effects of Ultraviolet Irradiations on Normal Adults. Hope H. Hunt and Jane M. Leichsenring, St. Paul.—p. 318.
X-Ray and Cathode Ray Tubes in the Service of Biology. C. P. Haskins and C. N. Moore, Schenectady, N. Y.—p. 330.
Pneumopericardium Following a Foreign Body in the Esophagus. R. A. Arens and Ellen Stewart, Chicago.—p. 334.
Bronchial Obstruction: Its Diagnosis and Treatment. R. H. Stevens and W. A. Hudson, Detroit.—p. 339.
Problems of Protection and Their Solution in Short Wave Roentgen Therapy. T. Leucutia and K. E. Corrigan, Detroit.—p. 350.

The Pathogenesis of Osteodystrophies and Bone Tumors.—Levin states that osteitis fibrosa and deformans appear to be morphologically and roentgenologically similar to osteoplastic metastatic carcinoma of the skeleton. Only 2.5 per cent of all cases of carcinoma of the stomach and 3 per cent of all cases of carcinoma of the uterus show metastases in the bones. The types of carcinoma that most frequently develop metastases in the bones are carcinoma of the breast, of the prostate and of the thyroid. In carcinoma of the prostate, the greatest number show extensive osteoplasia and the patients may continue to live even for years with a well functioning skeleton. In carcinoma of the thyroid, the predominance of osteoplasia or osteoporosis is encountered with about equal frequency. In carcinoma of the breast, cases with osteoporosis are more frequently observed, and even a beginning of osteoplasia soon changes into osteoporosis. The destruction of the normal bone tissue (osteoporosis) in skeletal metastasis is a purely local processes and must be a direct function of the group of cancer cells transported to the bone. This function is most probably chemical and is analogous to the condition found in osteomalacia. The difference between the osteoporosis in carcinoma and in osteodystrophy consists in the fact that in the latter condition the cells which act on the bone do it at a distance and may represent the function of the parathyroids or other endocrine glands. The reason for the prominence of osteoplasia in some forms of osteodystrophies and tumors of the bone and its absence in others must be looked for in the differences of the function of the endocellular metabolism, whether it concerns endocrine action, nutritional deficiency or local action of cancer cells. One type of cancer cells or of endocrine organs may predominate in its destruction of the bone over the reparative power of the latter, while in other types of cells the reparative function of the bone tissue predominates. Osteoporosis (rachitic, carcinoma of the breast) prevails in the young and osteoplasia (Paget's disease, carcinoma of the prostate) predominates in old age. This coincides with the fact that, during senescence, many types of parenchymatous tissues are replaced by fibrous connective tissue. Scirrhous carcinoma, in which the fibrous stroma predominates, is also a disease of old age. A final diagnosis of Paget's disease should not be made until the possibility of a primary malignant process elsewhere in the body is excluded. In the case reported by the author the mechanism of the healing of the traumatic fracture established the diagnosis of Paget's disease, though the patient did not present a classic picture of the disease.

Review of Gastroenterology, New York

1: 1-94 (March) 1934

The Physician's Legal Duty to a Patient. W. Weiss, New York.—p. 12.
Ways of Discovering the Foods That Are Causing Indigestion. W. C. Alvarez, Rochester, Minn.—p. 13.
History of Gastro-Enterology. A. Bassler, New York.—p. 19.
Physiology of Gallbladder. J. F. Dreier, W. N. Crellin and M. E. Rehfuss, Philadelphia.—p. 24.
Function of Liver in Relation to Its Blood Supply. L. Lichtwitz, New York.—p. 33.
*Tobacco Sensitivity in Peptic Ulcer. I. Ehrenfeld and M. Sturtevant, New York.—p. 44.
Rôle of Stomach and Upper Intestinal Tract in Water and Mineral Metabolism. E. Foldes, New York.—p. 46.

Tobacco Sensitivity in Peptic Ulcer.—Ehrenfeld and Sturtevant gave injections of tobacco protein to fifty-five patients, proved roentgenologically to be suffering from peptic ulcer, in order to determine whether tobacco had any effect on gastric function. Only two patients gave a marked, characteristic positive reaction to the three antigens that were used, and nine reacted to a concentrated mixed tobacco solution with a slight increase in the size of the wheal and a faint zone of erythema but no pseudopodia. These reactions were considered negative. Passive transfer was attempted from the two positive reactions to four persons, giving negative results in the eight instances.

Rhode Island Medical Journal, Providence

17: 35-52 (March) 1934

Specific Treatment of Asthma in Children. W. P. Buffum, Providence.—p. 35.
Asthma Study in Children. R. C. Bates and S. Freedman, Providence.—p. 38.

Science, New York

79: 191-214 (March 2) 1934

*Rapid Method for Preparation of Delafield's Hematoxylin. H. W. Neild, Urbana, Ill.—p. 209.
Soap as Mosquito Larvicide. J. M. Ginsburg.—p. 210.
Fixing the Print of Carbon Copies. A. F. Roe, Washington, D. C.—p. 210.
Deuterium Oxide and Aspergillus. S. L. Meyer, Nashville, Tenn.—p. 210.
*Effect of Ferric Chloride Injections in Experimental Tuberculosis. V. Menkin, Boston.—p. 211.
Frogs and Opalinidae. M. M. Metcalf, Wahan, Mass.—p. 213.

Rapid Method for Preparing Delafield's Hematoxylin.—Neild reduces the ripening period of Delafield's hematoxylin from sixty days to three hours by preparing the solution in the usual way and placing it in an open dish, at a distance of 15 cm. from a Cooper Hewitt burner, operating at 140 volts and 3.3 amperes, for one hour. The solution is then filtered and 100 cc. of methyl alcohol and 100 cc. of glycerin is added to it. This solution is placed under the Cooper Hewitt burner at the same distance for two hours. The solution is then filtered and used for staining purposes. The author noticed no appreciable difference between the staining quality of the hematoxylin prepared in this manner and that left for sixty days to ripen.

Effect of Ferric Chloride Injections in Tuberculosis.—Menkin inoculated intravenously ten rabbits each with 0.005 mg. of a relatively avirulent strain of bovine tubercle bacilli. Six weeks later each one of these ten rabbits was inoculated subcutaneously in the thigh with 0.05 mg. of a virulent bovine Ravenel strain of tubercle bacilli. Repeated intravenous injections with a 0.25 per cent solution of ferric chloride were immediately started in five of the rabbits; the remaining tuberculous animals were kept as controls. The ferric chloride injections were carried on for about fifteen weeks and then discontinued. The first control rabbit died forty-seven days after reinfection with tubercle bacilli The last of the control rabbits died 130 days after reinoculation with the bacilli. At necropsy these control animals displayed widespread confluent tuberculous lesions, affecting primarily the lungs, with discrete tubercles in the kidneys, and with prominent tuberculous abscesses at the site of subcutaneous reinoculation. The first experimental rabbit died eighty-one days after reinoculation, the second 110 days later and the third 131 days after reinfection with tubercle bacilli. Two of these three animals had an infection of the upper respiratory tract at the time of death. All three rabbits showed discrete caseous tubercles in the

lungs, with hardly any confluence of lesions. The two remaining animals continued to increase in weight for more than six months after the death of the last control, and 334 days after reinoculation with tubercle bacilli these two rabbits were killed. One showed absolutely no sign of any lesion in the thigh. The other rabbit, which had just begun to show a slight loss in weight at the time it was killed, presented a somewhat more tuberculous involvement at necropsy.

South Carolina Medical Assn. Journal, Greenville

30: 49-64 (March) 1934

*Operative Treatment of Infantile Hydrocephalus. R. G. Doughty, Columbia.—p. 51.
Modern Open Method of Treating Certain Fractures. J. H. Taylor, Columbia.—p. 54.
Ludwig's Angina: Report of Cases. D. St. P. Asbill, Columbia—p. 55.

Operative Treatment of Infantile Hydrocephalus.—Doughty states that in infantile hydrocephalus, if after intraspinal injection of the phenolsulphonphthalein none of the dye is obtained from the ventricle and only a 10 per cent output is shown from the kidney, one is dealing with a block of the ventricular system and an absence of the arachnoid and there is no operative procedure worth while. If, however, no dye is obtained from the ventricle and the two hour phenolsulphonphthalein output approximates 40 per cent, there is not only a block present but the arachnoid is present also and is functioning, and a third ventriculostomy offers considerable hope. The author reports a case of hydrocephalus in a child of 4 months in whom a lumbar puncture was done and, following the removal of 1 cc. of spinal fluid, 1 cc. of phenolsulphonphthalein was injected. Twenty minutes later a tap of the left ventricle failed to show any dye in the fluid obtained. During the two hours subsequent to the injection of the phenolsulphonphthalein the urinary output was extremely small and only a 12 to 15 per cent phenolsulphonphthalein return was obtained. Subsequently this was repeated, and while the urinary output was again small there was a return of 30 per cent of the phenolsulphonphthalein in two hours. The head was put in a plaster cast and, through a curved left temporal incision, the brain was exposed. The left lateral ventricle was tapped and partially emptied. The temporal lobe was then lifted up and the bulging arachnoid at the base was torn. The wall of the lateral ventricle was then quite prominent. It was widely incised just posterior and lateral to the hypophyseal stalk. The cavity was then filled with physiologic solution of sodium chloride, the dura and temporal bone were sutured and the galea and skin were closed. The baby's general condition was fair. For about a week after operation the child's temperature ranged from 101 to 105 F., but he was conscious and took his feedings well. Following this the temperature gradually returned to normal. There was a slight skin infection in the wound, which cleared up quite readily. The cast was removed three days after operation. On dismissal from the hospital, two weeks after operation, the fontanels were soft and fluctuant and the circumference of the head was less than 20 inches. The patient has continued to improve, the fontanel has remained soft and the circumference of the head, six weeks after operation, was 19 inches.

Southern Medical Journal, Birmingham, Ala.

27: 185-282 (March) 1934

Value of Radiology to the Thoracic Surgeon. A. Ochsner, New Orleans. —p. 185.
Modified Gorbell-Stoeckel Operation for Urinary Incontinence. R. W. TeLinde, Baltimore.—p. 193.
Fractures of Facial Bones, with Especial Reference to Involvement of the Paranasal Sinuses and Orbits. W. D. Gill, San Antonio, Texas. —p. 197.
Reticulo-Endothelial System and Its Relation to Neoplastic States. G. T. Caldwell, Dallas, Texas.—p. 205.
Von Recklinghausen's Disease, Often a Difficult Surgical Problem. H. T. Phillips, Wheeling, W. Va.—p. 212.
Arthrokatadysis of the Hip Joint. M. Gellman, Baltimore.—p. 215.
Inguinal Hernia: Standardizing Technic for Operative Repair. R. L. Payne, Norfolk, Va.—p. 220.
Massive Renal Calculi in Association with Nutritional Diseases. G. Walsh and E. M. Norton, Fairfield, Ala.—p. 224.
Extensive Bilateral Renal Calculosis of Rapid Development Following Fracture of Vertebrae: Discussion of Possible Etiologic Factors. R. J. Holmes and M. M. Coplan, Miami, Fla.—p. 228.
Artificial Pneumothorax in Treatment of Pneumonia. L. J. Moorman, Oklahoma City.—p. 233.
Quantitative Determination of Water Losses in Surgical Patients. F. A. Coller and W. G. Maddock, Ann Arbor, Mich.—p. 237.
Some Heart Irregularities and Their Management. L. Hart, Meridian, Miss.—p. 240.
Use of Sodium Iso-Amylethyl Barbiturate (Sodium Amytal) in Treatment of Eclampsia. M. S. Lewis, Nashville, Tenn.—p. 244.
Specially Produced Milk in Solution of Goiter Problem. W. Weston, Columbia, S. C.—p. 249.
Psychopathic Personality: Medicolegal Aspects. C. A. McKendree, New York.—p. 254.
Rupture of Kidney Pelvis: Report of Three Cases. B. S. Abesheuse, Baltimore.—p. 258.
Surgical Treatment of Glaucoma. J. H. Burleson, San Antonio, Texas. —p. 262.
Coordinated National Health Program. A. T. McCormack, Louisville, Ky.—p. 266.
*Mite Infestation in the Human Intestine. R. H. Kampmeier and E. H. Hinman, New Orleans.—p. 271.

Mite Infestation in the Human Intestine.—Kampmeier and Hinman present two cases of gastro-intestinal mite infestation. Diarrhea was the chief presenting symptom and ceased on elimination of contaminated food from the diet. It was possible to correlate proctoscopic and pathologic observations in one of these cases, owing to intercurrent pneumonia and death. The source of the ingested mites could not be ascertained, but the social stratum of the patients made mite contamination of food probable. Chronic diarrhea is probably due to continuous reinfestation as a result of constantly eating contaminated food. The organisms probably have only a temporary sojourn in the intestine, especially when diarrhea is present. Oviposition and hatching of eggs unquestionably occur, but completion of the life cycle seems doubtful. Treatment would appear to consist only of the elimination of food contamination. The incidence of intestinal mite infestation would be difficult to determine. Routine fecal examination would undoubtedly fail to reveal many cases. The eggs, if observed, might be mistaken for those of the hookworm or other nematodes. Since only a few eggs are deposited daily, they may be readily overlooked. Culture of stools obtained with adequate precaution is the most reliable method of diagnosis. Failure to find the parasites does not exclude the possibility of their presence. Unclean catheters and douche tips when used by the public or others may be the sources of contamination in such cases.

Southern Surgeon, Atlanta, Ga.

3: 1-78 (March) 1934

Tumors of the Breast. I. Abell, Louisville, Ky.—p. 1.
*Vaginal Approach to Peritoneal Cavity. W. W. Babcock, Philadelphia. —p. 11.
Diagnosis and Treatment of Tumors of Thorax, Exclusive of Breast Tumors. C. A. Hedblom, Chicago.—p. 21.
Transpleural Splenectomy for Ruptured Spleen: Case Report. A. Blalock, Nashville, Tenn.—p. 37.
Postoperative Treatment. I. Cohn, New Orleans.—p. 39.
Cancer About the Mouth. J. B. Brown, St. Louis.—p. 47.
Diagnosis and Treatment of Malignant Tumors of the Thyroid Gland. M. Nordland and L. M. Larson, Minneapolis.—p. 53.
Fibroid Tumors: Review of One Hundred Cases. J. C. Norris, Atlanta, Ga.—p. 62.

Vaginal Approach to Peritoneal Cavity.—Babcock points out that in the adult woman the lower peritoneal cavity may be entered, explored and drained in the simplest and quickest way through the vaginal vault. Here the extraperitoneal layers are only a few millimeters in thickness and the peritoneum may be entered by a single thrust of a pair of curved scissors. Such an opening may be readily enlarged by the fingers alone to a size sufficient for exploration of the pelvis and lower part of the abdomen without the division of a single important blood vessel or the need of a ligature. Not infrequently a hand may be introduced through such an opening and the lower abdominal structures may be palpated. At the completion of the operation no sutures or peritoneal closure is required; a gauze drain laid through the opening completes the operation. Secondary complications resulting from the vaginal approach are rare, as the integrity of the anterior abdominal wall is not jeopardized. If skilfully done, the vaginoperitoneal section is usually much safer and has a lower mortality than an abdominal section. Against the manifest advantages for the patient, the surgeon must contend against increased difficulties: restricted operative field, special instruments and methods of illumination. Adequate training to avoid injury to intestine, bladder, ureter or other important structure and to ensure dependable hemostasis is essential.

Southwestern Medicine, Phoenix, Ariz.

18: 77-108 (March) 1934

The Crippled Hand. C. Von Wedel, Oklahoma City.—p. 77.
Is Our Present-Day Knowledge Adequate for the Control of Clinical Tuberculosis? O. E. Egbert, El Paso, Texas.—p. 81.
Does Tonsillectomy Light Up Latent Tuberculosis? E. W. Phillips, Phoenix, Ariz.—p. 84.
Treatment of Tuberculous Pulmonary Cavity. C. W. Mills, Tucson, Ariz.—p. 88.
How Our Experience in the Last Few Years Has Changed Our Attitude Toward Collapse Therapy. J. J. Beatty, Tucson, Ariz.—p. 93.

Virginia Medical Monthly, Richmond

60: 709-762 (March) 1934

Bronchoscopy and Esophagoscopy: Report of Cases. E. T. Gatewood and T. E. Hughes, Richmond.—p. 709.
Fever Therapy in Paresis. J. King, Radford.—p. 720.
Does Circumcision in Infancy Protect Against Disease? A. L. Wolhurst, New York.—p. 723.
Inflammatory Tumors of the Small Intestine: Case Report. C. Williams, Richmond.—p. 728.
Functional Disorders Arising from Ovarian Hypofunction. F. M. Horsley, Arrington.—p. 733.
Indications for Posterior Gastro-Enterostomy. H. H. Hurt, Lynchburg.—p. 736.
Cervicitis, Prenatal, Puerperal and Postnatal Prophylaxis. J. W. Henson, Richmond.—p. 739.
Rational Treatment of Pylorospasm in Infants. C. P. Mangum, Richmond.—p. 743.
Multiple Abscesses of the Liver Complicating Acute Appendicitis: Case Report. W. H. Saunders and T. D. Armistead, Roanoke.—p. 747.
Diagnostic Hints in Gynecology. E. Podolsky, Brooklyn.—p. 748.
Abdominal Drainage. S. Leigh, Norfolk.—p. 749.

West Virginia Medical Journal, Charleston

30: 49-96 (Feb.) 1934

Infections of the Blood Stream. R. M. Wylie, Huntington.—p. 49.
Phrenicotomy in the Treatment of Pulmonary Tuberculosis. R. B. Bailey, Wheeling.—p. 56.
Short Review of Certain Aspects of Pellagra. W. H. Riheldaffer, Lost Creek.—p. 60.
Practical Skin Therapy. M. L. Bonar, Charleston.—p. 64.
Management of Acute Head Injuries. A. A. Wilson, Charleston.—p. 71.
Treatment of Postpartum Hemorrhage. S. J. Goodman, Columbus, Ohio.—p. 78.

30: 97-144 (March) 1934

Chronic Suppurative Otitis Media: Observations Regarding Its Prevention, Examination and Treatment. J. W. Downey Jr., Baltimore.—p. 97.
Unfavorable Reactions Due to Antirabic Treatment: Two Cases. F. C. Hodges, Huntington.—p. 106.
Cholesteatoma: Case Report of Bilateral External Cholesteatoma. A. P. Hudgins, Hinton.—p. 114.
Rocky Mountain Spotted Fever, Eastern Type: Three Cases Occurring in Same Family on Western Decline of the Alleghenies. D. G. Preston, Lewisburg.—p. 119.
Treatment of Hemorrhoids and Pruritus Ani. B. Banks, Charleston.—p. 122.
Umbilical Cord Clamp. T. W. Nale, Glen Rogers.—p. 128.

Yale Journal of Biology and Medicine, New Haven

6: 367-486 (March) 1934

Doctor Hezekiah Beardsley, 1748-1790. W. R. Steiner, Hartford, Conn.—p. 367.
*Diabetes Insipidus Associated with Pinealoma Transplant in the Tuber Cinereum. S. W. Stringer, New Haven, Conn.—p. 375.
Roentgenographic Study of Thoraces of New-Born Infants. Ethel C. Dunham and M. D'Amico, New Haven, Conn.—p. 385.
Relationship of Age to Immunologic Reactions. Leona Baumgartner, New Haven, Conn.—p. 403.
End-Results in the Treatment of Carcinoma of the Colon. A. W. Oughterson, New Haven, Conn., and M. T. Shelton, Harrisonburg, Va.—p. 435.

Diabetes Insipidus Associated with Pinealoma.—Stringer presents the history and necropsy observations of a man, aged 27, who suffered from diabetes insipidus for a period of five months preceding death, which followed after a period of hyperpyrexia of 107 F. lasting one week. Generalized signs of an intracranial tumor were absent. The administration of solution of pituitary was at first successful in relieving the diabetes insipidus, but gradually this therapeutic measure failed to be effective. At necropsy a pinealoma was found in the pineal body and a transplant of this tumor was present in the region of the tuber cinereum. This metastatic implant destroyed the tuberal group of hypothalamic nuclei and invaded the stalk of the hypophysis, producing closure of the infundibular canal.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Urology, London

6: 1-100 (March) 1934

Investigation into Permeability of Kidney to Bacteria in Circulating Blood. H. J. R. Kirkpatrick.—p. 1.
Observations on Stimulating Influence of Temporary Rubber Splinting on Regeneration Following Ureteral Resection: Experimental Study. J. L. Wiseman.—p. 11.
Extravasation of Urine from Ureter Secondary to Ureteral Calculus. G. S. Foulds and D. H. Varey.—p. 27.
*Diagnosis of Renal Tuberculosis by Cultures Made from Urinary Sediment. D. N. Eisendrath.—p. 37.

Diagnosis of Renal Tuberculosis by Cultures.—Eisendrath says there is a close relation between the elimination of tubercle bacilli from a tuberculous kidney and the anatomic changes incident to such an infection. For this reason, one may find the bacilli at one examination and not at another. In the author's first series, consisting of fifty-seven cases, the cultures were positive in thirty, whereas the stain was positive in only twenty of the thirty. In a second series, of thirteen cases, the culture was positive in seven, whereas the stain was negative in the five but had been positive at previous examinations in four of the five cases. The bladder specimen may be negative and that taken directly from the kidney may be positive; hence it is always advisable to examine the urine obtained by ureteral catheterization. The author is of the opinion that one should always control the culture by animal inoculation to avoid error. One should keep the cultures under observation for at least ninety days. The culture method should be employed as a routine measure whenever the stain is negative. The chief advantage of making a smear before visible colonies appear is that one can find the bacilli as early as the seventh day, whereas the earliest visible colonies were not found until the fourteenth day. That tubercle bacilli may be found in the urine by culture from three to ten years after nephrectomy was evident in five of the author's cases.

British Medical Journal, London

1: 365-414 (March 3) 1934

Hypochondriasis: Individual, Vicarious and Communal. R. Hutchison.—p. 365.
Significance of Monilia in the Sputum. P. H. Jones.—p. 368.
Study of Pulmonary Tuberculosis in Infants and Children: Note. G. G. Kayne.—p. 370.
Lack of Evidence of Transmission by Human Beings of Tuberculosis Due to Bovine Type of Bacillus. G. Walker.—p. 371.
Artificial Pneumothorax: After-History of One Hundred and Thirteen Cases. R. R. Trail.—p. 373.
Ocular Torticollis: Inferior Oblique Tenotomy and Its Indications. E. T. Smith.—p. 374.
Construction of a Vagina from a Loop of Sigmoid. E. R. Carling.—p. 375.
*Leaking Cerebral Aneurysm. G. D. Kersley.—p. 376.

Leaking Cerebral Aneurysm.—Kersley presents the case of a multipara, aged 38, sent to the hospital because of antepartum hemorrhage. Six months previously she had experienced a sudden intense occipital headache, which gradually subsided. There was albuminuria and a blood pressure of 215 systolic, 140 diastolic. There were no labor pains, but the cervix was three fingers dilated; the placenta could not be felt. The following night the patient fainted, labor pains began and there was a profuse hemorrhage from the uterus. The membranes were ruptured and a stillborn child was delivered. The mother collapsed, with a pulse rate of 130 and a blood pressure of 140. Two hours later she had a fit, lasting six minutes, with opisthotonos and clonic movements of the limbs. Under treatment with morphine and chloral she improved a little but remained somewhat cyanosed. On the fourth day the temperature rose to 101 F., the breasts became tender and the patient became more lethargic. The blood pressure was now 180. On the sixth day after delivery the patient developed a right hemiplegia. The diagnosis of leaking aneurysm was confirmed by lumbar puncture, when the cerebrospinal fluid was found to be intimately mixed with blood, with a colored supernatant fluid after centrifugation. The patient gradually became more comatose and died on the tenth day. At necropsy a small ruptured aneurysm was found at the origin of the left middle cerebral artery, and another aneurysm, about 3 mm.

in diameter, was situated close by on the posterior communicating artery. It seems likely that six months previously the patient had a slight leak from an aneurysm; in the latter months of pregnancy she became toxemic and finally had an eclamptic fit, which caused the aneurysm to leak again, with a fatal result.

1: 415-468 (March 10) 1934

Uses and Dangers of Hypnotic Drugs Other Than Alkaloids. W. Willcox.—p. 415.
*Carbon Dioxide Therapy in Lobar Pneumonia. R. Hilton.—p. 418.
Renal Tuberculosis: Survey of Seventy Cases. A. Jacobs.—p. 420.
Effects of Subcutaneous and Intravenous Injection of Toxins Combined with Fine Emulsions of Oils. V. G. Walsh and A. C. Frazer.—p. 424.
Ten Years of Malarial Therapy. J. E. Nicole and E. J. Fitzgerald.—p. 426.

Carbon Dioxide Therapy in Lobar Pneumonia.—To determine the value of carbon dioxide in lobar pneumonia, Hilton took a sample of blood from the femoral artery, administered approximately 3 per cent carbon dioxide with a loose face mask and made examinations of the breathing and the blood fifteen minutes later. The blood gases were determined by the van Slyke method. To obtain these measurements he used a specially devised low resistance mask, which has proved its value in collection of air in dyspnea. He observed that arterial anoxemia is not relieved after carbon dioxide administration in these quantities, in spite of the fact that the depth of the tidal air is considerably increased. He discusses the part that shallow breathing may play in the production of anoxemia, the action of carbon dioxide on the oxygen dissociation curve and on arterial carbon dioxide, pain, blood pressure and cyanosis and concludes that in the absence of respiratory failure, as evidenced by shallow breathing, the clinical benefits of carbon dioxide administration in air are not sufficiently demonstrated to warrant its routine use in lobar pneumonia.

Edinburgh Medical Journal

41: 61-140 (Feb.) 1934

Prognosis in Mammary Carcinoma in Relation to Grading and Treatment. E. K. Dawson and M. C. Tod.—p. 61.
*Treatment of Hypochromic Anemia with Soluble Ferrous Salts. H. W. Fullerton.—p. 99.
Mental Element in Crime and Criminals. R. A. Fleming.—p. 108.
Clinical Studies in Pathology of Bone. D. M. Greig.—p. 120.

Treatment of Hypochromic Anemia with Ferrous Salts.—Fullerton treated twenty-one cases of hypochromic anemia with small doses of ferrous sulphate (9 grains [0.6 Gm.] daily). Most of the cases were treated as outpatients. Ten patients (48 per cent) showed an average daily hemoglobin increase of 1 per cent or more and accordingly can be regarded as having responded satisfactorily to this form of therapy. Three patients showed a good response, although falling short of the standard rise of 1 per cent hemoglobin a day. The remaining eight cases were complicated by hemorrhage during treatment. A comparison of the efficacy of iron preparations in the treatment of hypochromic anemia has shown that ferrous sulphate treatment appears to be reliable when hemoglobin deficiency is the essential feature and that the speed of its return to normal is surely the best index of therapeutic efficiency.

41: 141-244 (March) 1934

*Detection of Tubercle Bacilli in Blood Stream in Pulmonary Tuberculosis. A. G. Emslie.—p. 141.
Tuberculous Disease of the Middle Ear and Mastoid. H. R. Souper.—p. 154.
Demonstration Illustrating the Comparative Value of Certain Mediums in the Culture of Tubercle Bacilli. The Laboratory Staff of the Southfield Sanatorium Colony.—p. 167.
Demonstration of Growths of Tubercle Bacilli. W. T. Munro.—p. 168.
Phrenic Evulsion in Treatment of Pulmonary Tuberculosis. B. W. Anderson.—p. 169.
Impressions from a Recent Personal Study of Tuberculosis Work in the United States of America. D. M. Dunlop.—p. 188.
Some Aspects of Tuberculosis of the Nervous System, with Especial Reference to Tuberculomas. E. Bramwell.—p. 195.
Problems of Research in Tuberculosis. A. S. MacNalty.—p. 207.
Silica in Relation to Pulmonary Disease. M. J. Stewart.—p. 226.
Tuberculosis in Relation to Eye Disease. A. H. H. Sinclair and G. B. Flint.—p. 233.

Bacilli in Blood in Tuberculosis.—Emslie made fifty-four blood cultures by Loewenstein's technic and twenty-eight animal inoculation tests (omitting the two animals that died within two weeks) for tubercle bacilli with the blood of thirty-four known tuberculous and four nontuberculous patients, and in two cases some result other than a definite negative has been found. Two cases produced acid-fast bacilli which failed to infect guinea-pigs. As both subculture and animal inoculation with scrapings of the cultures showing acid-fast bacilli failed, it is impossible to regard them as tubercle bacilli. All animal inoculation tests were negative. Reexamination at a later date of the cultures containing acid-fast bacilli revealed that they had disappeared from the culture. The author concludes that the occurrence of any degree of continuous tuberculous bacillemia is not proved. Acid-fast bacilli are to be found in the cultures by various methods, the proportion varying with the different investigators. The author obtained a percentage of 5.3 by his method. The exact nature and source of these acid-fast organisms have not yet been determined, but it is highly probable that they are contaminations from sources such as glassware and tap water. Loewenstein's results have not been confirmed by the author, whose work agrees with the observations of Schwabacher, Weatherhall, Cumings and Pearce. Loewenstein's medium is suitable for the culture of tubercle bacilli.

Glasgow Medical Journal

3: 89-124 (March) 1934

More Recent Relationship of Ophthalmology to General Medicine. H. W. Thomson.—p. 89.
Epivan Sodium Intravenous Anesthesia in Gynecology: Note on One Hundred and Thirty-Seven Cases. A. Sharman.—p. 104.

Indian Medical Research Memoirs, Calcutta

No. 28: 1-78 (Jan.) 1934

*Investigation into Relative Immunizing Value of Kasauli and Paris Strains of Rabies Fixed Virus. H. E. Shortt, R. H. Malone, A. C. Craighead and J. P. McGuire.—p. 1.

Kasauli and Paris Strains of Rabies Virus.—As the result of human inoculations carried out in a series of 15,910 cases, Shortt and his associates demonstrate that the Paris strain of rabies fixed virus is superior in immunizing properties to the Kasauli strain of rabies fixed virus. An extensive series of animal experiments confirms this conclusion. The minimal lethal dose of the Paris strain of rabies fixed virus is smaller than that of the Kasauli strain, but the latter kills animals in a shorter time, averaging about twenty-four hours less. In the experiments devised for testing the relative immunizing values in human cases of these two strains and in the interpretation of the results of the experiments, homogeneity of the treated population during the entire time range of the experiments, the uncertainty as to the number of persons actually at risk, the plurality of street viruses, the species of the biting animal and the uniformity in the classification of the cases were taken into consideration.

Journal of Laryngology and Otology, Edinburgh

49: 153-220 (March) 1934

Vertigo. W. R. Brain.—p. 153.
Labyrinthine Tests and Their Aid to Diagnosis. A. R. Tweedie.—p. 160.
*Secondary Thiersch Grafting of Radical Mastoid Cavity Through the Meatus. W. I. Daggett and G. H. Bateman.—p. 169.

Grafting of Mastoid Cavity Through the Meatus.—Daggett and Bateman believe that the logical solution in mastoid cavity grafting is through the meatus at the end of a fortnight. They operate with especial attention to refashioning a wide meatus, under gas, changing the dressing on the seventh day; from the seventh to the fourteenth day the dressings are changed and the cavity is syringed when necessary; on the fourteenth day the cavity is grafted under a barbituric acid derivative (evipan) anesthesia and wax is poured in; on the fifteenth or sixteenth day the patient leaves the hospital; the top dressing is changed when necessary till the twenty-eighth day; on the twenty-eighth day the wax is removed and powder is insufflated and the cavity is inspected periodically as circumstances dictate. In the nineteen cases in which the foregoing method was employed, the grafts have taken and there has not been a single instance of adhesion between the roof and the facial ridge. In six, the cavity has remained completely dry from the time the wax was removed. In one patient having complete facial paralysis before operation, the facial movements were normal a week after removal of the wax and only a small moist area persisted over the site of the fistula.

Journal of Tropical Medicine and Hygiene, London

37: 81-96 (March 15) 1934

British Solomon Islands Health Surveys, 1933. S. M. Lambert.—p. 81.
Studies on Ascariasis: 1. Geographic Distribution, with Especial Reference to Egypt. R. Girges.—p. 85.

Lancet, London

1: 333-384 (Feb. 17) 1934

Treatment of Nephritis. A. Ellis.—p. 333.
Alleged Dangers of Barbiturates. R. D. Gillespie.—p. 337.
Suppuration in a Closed Fracture of the Clavicle. C. Flemming.—p. 346.
Myeloma: Case. F. H. Scotson.—p. 346.
Sarcoma of Thigh Muscles Treated Conservatively. L. Ley.—p. 347.

1: 385-440 (Feb. 24) 1934

Medical Education, 1760-1934. C. Wallace.—p. 385.
*Treatment of Puerperal Infection, Due to Streptococcus Pyogenes by Organic Arsenical Compounds. L. Colebrook and R. Hare.—p. 388.
Hemolytic Streptococcic Septicemia Treated by a Modified Form of Immunotransfusion. C. B. Dyson, note by R. Miller.—p. 391.
*Heredity as a Factor in the Etiology of Diabetes Mellitus. P. J. Cammidge.—p. 393.
Mucocele of the Vermiform Appendix. B. S. Cran.—p. 395.
Rhythmic Arterial Muscular Contractions and Electrocardiogram. C. B. Rossiter.—p. 397.
Effect of Dinitrophenol on Tumor Metabolism. E. C. Dodds and G. D. Greville.—p. 398.

Treatment of Puerperal Infection.—Colebrook and Hare give the results obtained in the treatment of sixty-six cases of puerperal infection by Streptococcus pyogenes with organic arsenical compounds (usually of the sulpharsphenamine type). In twenty-nine cases in which, when treatment was commenced, the infection was limited to the tissues of the genital tract, the spread of the streptococcus invasion beyond those tissues occurred much less frequently (in 31 per cent as compared with 47) than in a control group of approximately similar cases. Streptococcus pyogenes did not disappear from the lochia during treatment by arsenicals. The arsenic content of the lochia in several cases following administration of arsenicals was usually low, suggesting that the transudate from the blood vessels into the infected tissues of the body of the uterus was too small to allow of any considerable destructive effect on the streptococci in that situation. In a group of twenty-eight cases presenting an infection of the blood stream (positive blood culture) in which peritonitis could be excluded there were three cases in which it appeared probable that the treatment had had a definite effect. The rate of recovery for the whole series, however, was only 40 per cent as compared with 42 per cent for a control group of similar cases treated by various other methods. In most of the patients whose blood yielded more than one or two colonies per cubic centimeter of blood before the arsenical compound was administered, negative blood cultures were not obtained during the treatment. Necropsies on several of the treated cases indicated that the probable reason for failure was the presence of septic clots in large pelvic or abdominal veins into which a bactericidal agent could not be expected to penetrate. In a group of nine cases of general peritonitis (four giving a positive blood culture) there was no apparent effect of treatment.

Heredity and Diabetes Mellitus.—From a study of 800 cases of diabetes reported previously, in 224 of which there was a history of glycosuria in blood relations, and his present report of 1,000 cases, in 396 of which there was a history of familial diabetes, Cammidge states that the available evidence confirms the dictum of Naunyn that the more carefully the family histories are inquired into, the more frequently is evidence of heredity discovered. At present one can safely say only that heredity is a factor in the etiology which has to be reckoned with much more seriously than has been supposed previously. Seeing that the potentiality for developing diabetes may be transmitted either as a mendelian recessive character or as a mendelian dominant, it is necessary, if the part played by heredity is to be fully determined, that the investigation of the histories of diabetic patients should include all blood relations, that is to say, all persons related by blood and not merely by marriage, as far as possible, and not be confined, as it often has been in the past, merely to immediate members of the family; for, as is well known, a recessive character may remain in abeyance for several generations and be evident only in collaterals. Differentiation of the recessive from the dominant type is of some clinical importance, since the dominant variety is almost invariably mild and is easily controlled by diet alone; it usually persists for many years, even in young people, without causing serious symptoms or materially affecting the general health; the recessive form, on the other hand, is generally grave from the onset and almost invariably requires the use of insulin to keep it under control.

Medical Journal of Australia, Sydney

1: 325-360 (March 10) 1934

Correlation of X-Ray and Clinical Findings in Diagnosis of Chest Diseases. D. Thomas and K. Hallam.—p. 325.
Esophageal Obstruction. R. M. Glynn.—p. 329.
*Reactions Produced by Hydnocarpates in Chronic Pulmonary Tuberculosis. L. W. Martin.—p. 334.
Vitamin C. G. Bourne.—p. 339.

Hydnocarpates in Chronic Pulmonary Tuberculosis.—Martin states that in vitro experiments show the hydnocarpates to have a definite bactericidal effect on tubercle bacilli. Cummins has shown that sodium hydnocarpate (alepol) in a dilution of 1:1,000,000 only has a growth-inhibiting and probably bactericidal effect on tubercle bacilli growing in Besredka egg medium. Other workers have found hydnocarpates in a dilution of from 1:100,000 to 1:1,000,000 to inhibit the growth of avian tubercle bacilli. Favorable results have been obtained in surgical tuberculosis. The author employed subcutaneous injections of hydnocarpates in chronic pulmonary tuberculosis in six selected cases, using a sterile 2 per cent solution with 0.5 per cent phenol acid. In none of the cases were immediate or late beneficial results obtained. The effect of injections was to produce undesirable pulmonary reactions and a temporary setback to any improvement that was occurring under general hygienic measures. Though only small doses were given, it was thought that the continuation of treatment would be detrimental to the patients concerned. Topical applications of sodium hydnocarpate to tuberculous ulcerations of the larynx had no effect in relieving pain or checking ulceration.

Chinese Medical Journal, Peiping

47: 1075-1476 (Nov.-Dec.) 1933. Partial Index

Parasites and Tumor Growth. R. Hoeppli.—p. 1075.
Histologic Changes in the Liver of Sixty-Six Chinese Infected with Clonorchis Sinensis. R. Hoeppli.—p. 1125.
Myeloid Changes in Spleen of Experimental Animals: Due to Infection with Cysticercus Fasciolaris and to Emulsions Prepared from Tapeworms. R. Hoeppli and L. C. Feng.—p. 1146.
Cutaneous Amebiasis: Review and Report of Three Cases Observed in North China. S. K. Ngai and C. N. Frazier.—p. 1154.
Certain Surgical Complications of Schistosomiasis Japonica. H.-L. Chung.—p. 1171.
Nodules or Tumors in Subcutaneous and Other Tissues Due to Cysticercus Cellulosae. K. Y. Ch'in.—p. 1181.
Some Histologic Changes Caused by Mites. L. C. Feng and R. Hoeppli.—p. 1191.
Curiosities in Human Parasitology. R. Hoeppli.—p. 1200.
Experiments on Resistance of Dipterous Larvae in Connection with the Problem of Intestinal and Urinary Myiasis. R. Hoeppli and J. Y. C. Watt.—p. 1298.
Mouth Spear of Trichocephalus Trichiurus and of Trichocephalus Sp. from Monkey, Macacus Rhesus. H. C. Li.—p. 1343.
Acute Hemorrhagic Pancreatitis Due Probably to Impaction of Ascaris Lumbricoides in Ampulla of Vater: Report of Case. K. Y. Ch'in.—p. 1373.
The Spirochetoses. P. Mühlens.—p. 1384.
Modern Methods of Treatment and Prophylaxis of Malaria by Medicaments. P. Mühlens.—p. 1401.
*Treatment of Schistosomiasis Japonica with Fuadin in Man. C. U. Lee and H.-L. Chung.—p. 1411.
Antimony in Treatment of Kala-Azar and Its Toxic Effects. E. B. Struthers, H. H. Chung, L. C. Lin and J. T. Ch'en.—p. 1421.
Treatment of Ascariasis with Hexylresorcinol. K. C. Wang.—p. 1433.

Treatment of Schistosomiasis Japonica with Fuadin.—Lee and Chung treated four cases of schistosomiasis japonica with fuadin. One patient derived no apparent benefit from the treatment. In the other three, clinical improvement with disappearance of eggs from the stool followed the treatment, but relapse occurred in all after a time. Any possibility of reinfection was excluded by virtue of the patients' continued residence in a nonendemic area during the period of observation. As compared with antimony and potassium tartrate, fuadin is less toxic and more easily administered. One of the patients, however, showed marked sensitiveness to it, and the treatment had to be discontinued. For the present it does not seem safe to regard fuadin as a reliable specific in bringing about a permanent cure in schistosomiasis japonica.

Archives des Maladies du Cœur, Paris

27: 129-188 (March) 1934

Double Impulse Conspicuous by Persistence of Coupled Ventricular Rhythm: Case. E. Géraudel.—p. 129.
Atrioventricular Dissociation and Alteration of Ventricular Complex with Negative T Wave in Course of Hyperthyroidism Treated by Iodide and Subtotal Thyroidectomy. P. Meyer and J. Stahl.—p. 143.
Clinical Syndrome of Myocardial Infarction Without Anatomic Infarction. L. Langeron.—p. 150.
*Crises of Sweating as Clinical Equivalent of Angina Pectoris and Acute Edema of Lungs. J. Urioste and R. P. Blanco.—p. 155.

Sweating in Angina Pectoris.—It has been recognized for years that attacks of profuse sweating may alternate in certain persons with attacks of anginal pain. Urioste and Blanco cite four patients of advanced age in whom periods of profuse sweating occurred. In all instances cardiovascular disease was present and had been producing other symptoms, or these developed later. The sweating crises were characteristically abundant and generalized, or predominant in the anterior portion of the neck and thorax. They were always accompanied by pallor, peripheral chilliness, tachycardia and a sensation of distress or even a sensation of approaching death. They might follow effort, digestion and emotion, or arise during nocturnal rest. If the sweating occurred in elderly people before any other sign of serious cardiovascular disease, it announced the serious nature of the condition. The authors look on these crises of sweating as a defense reaction of a viscerosensory-motor reflex substitute for typical anginal attacks. They must, however, be considered to have the prognostic significance of atypical angina.

Archives Méd.-Chir. d l'App. Respiratoire, Paris

8: 477-586 (No. 6) 1933

*Gaseous Distention of Retrosternal Pleural Pouch in Course of Therapeutic Pneumothorax: Anatomic, Clinical and Roentgenologic Study. R. Grandgérard and P. Weber.—p. 477.
Introduction to Theory and Practical Study of Climatology. J. Chaize.—p. 504.
Bacillemia According to Löwenstein and Tuberculin Allergy. A. Komis.—p. 518.
Lipopexia and Lipodieresis of Lung. L. Binet, E. Aubel and M. Marquis.—p. 522.
Plasmatic Phosphatase in Pulmonary Tuberculosis. L. Binet and J. Pautrat.—p. 531.
Lung Abscess and Septicemia Produced by Pneumobacillus of Friedländer. N.-N. Stoichitza and D. Jonnesco.—p. 534.

Gaseous Distention of Retrosternal Pleural Pouch in Therapeutic Pneumothorax.—Grandgérard and Weber state that mediastinal hernia occurring during artificial pneumothorax causes symptoms of dyspnea, pain and cardiac disturbance. To relieve the patient, the pneumothorax cavity should be aspirated and the pneumothorax carefully continued with refills of smaller amounts under reduced pressure and at longer intervals. There are two weak spots in the mediastinum, the upper lying between the first and third ribs anteriorly and the lower between the fifth and tenth dorsal spines posteriorly. In most cases hernia occurs in the upper and anterior mediastinal weak spot. Hernia has been observed in the presence of highly positive intrapleural pressure and of definitely negative intrapleural pressure. The authors maintain that the lung will collapse satisfactorily only when the air is introduced at a pressure higher than the atmospheric pressure. This pressure, which is distributed through the whole pleural cavity, allows distention to occur at the weakest spot. This distention appears soon after filling. If filling is done in the pleural cavity where the retrosternal pouch overlaps the opposite side, distention appears rapidly. In typical cases the leaves of the mediastinal pleura are directed obliquely from front to back and from left to right; the left pouch projects beyond the right anteriorly. If the patient receives insufflations into the left pleural cavity, the left pouch reacts to pressure by forcing it back; the distal end finds its way between the thoracic wall and the costal pleura of the opposite side, slips and, separating the costal pleura, projects into the contralateral half of the thorax. In a number of cases the authors constantly found a positive pressure in the hernial sac as well as in the principal pleural cavity. Distention of the retrosternal pouch was found only in young patients aged from 18 to 31, their age favoring a flexible mediastinum. In these young patients the pleura is rarely the seat of pathologic disturbances, such as pachypleuritides and adhesions found in older patients. The authors emphasize the importance of the anatomic predisposition of the sternomediastinal pleural leaves for the formation of a distention of the retrosternal pouch. Although this complication is usually harmless and does not hinder the course of the pneumothorax, it is necessary to know how to administer the injections in such a way as to reduce the hernial pouch or at least to arrest its progress.

Presse Médicale, Paris

42: 513-528 (March 31) 1934

Recent Progress in Vaccination with Diphtheritic Anatoxin. G. Ramon.—p. 513.
*Subcutaneous Vaccination with Neurovaccine. E. Gallardo.—p. 515.
Must Pneumococcic Peritonitis Be Operated On? Loutsch and Mérigot.—p. 517.

Subcutaneous Vaccination with Neurovaccine.—Gallardo feels that subcutaneous vaccination with the neurovaccine of Levaditi may advantageously replace dermal vaccination. The technic is simple and serious complications are not encountered. Positive results in children more than 4 months of age and in the revaccinated are comparable to those obtained by the dermal method. Local manifestations always appear more slowly than in dermal vaccination. It appears that immunity produced by subcutaneous vaccination is just as effective as that by dermal. The patients with negative reaction to subcutaneous vaccination could be divided into two groups. In forty-three nurslings (ten less than 4 months of age) a second cutaneous inoculation was performed at the end of twenty or thirty days. In twenty of these the reaction was positive, in nine an allergic type of reaction occurred and in fourteen there was no reaction. Thirty-four children more than 4 months of age formed the second group. These were given a second subcutaneous dose of vaccine thirty days after the first. In ten the results were positive. The twenty-four having negative results were revaccinated by scarification; four of these showed typical pustules of slight intensity, four others an allergic reaction, and sixteen no reaction. The author believes that subcutaneous vaccination with neurovaccine has a good future and further experiments may modify the technic toward obtaining a perfect immunization with a minimum of reaction.

Revue Française de Pédiatrie, Paris

9: 693-868 (No. 6) 1934

Endoscopic Technics in Diagnosis and Treatment of Croup and Tracheobronchial Diphtheria. A. Lemariey and L. Hamon.—p. 693.
Epidemic of Cerebrospinal Meningitis at Kharkov in 1931 and 1932. M. S. I. Chafirstein.—p. 718.
Mesocellac Appendicitis. R.-C. Monod.—p. 751.
*Problem of Syphilitic Etiology of Infantile Diabetes. V. Mikulowski.—p. 767.
Clinical Study and Diagnosis of Pulmonary Abscess in Children. I. Reyderman and P. Nesterovskaja.—p. 783.
Anesthesia with Tribrom-Ethanol in Children. H. L. Rocher and J. Soulard.—p. 803.
*Chorea and Rheumatism. N. Faxen.—p. 809.

Syphilitic Etiology of Infantile Diabetes.—Mikulowski admits no doubt that congenital syphilis may produce diabetes. Examination of the curve of sugar content of the blood in eighty children having congenital syphilis revealed a definite tendency to pathologic hyperglycemia. Although the classic signs of congenital syphilis are often lacking in infantile diabetes, critical study shows a series of analogies between the two pathologic entities. Thus in infantile diabetes the existence of congenital malformations and anomalies is a frequent and characteristic sign. Similar observations are frequent in syphilitic children. A comparable analogy lies in the neuropathologies and convulsive seizures in both syphilitic and diabetic infants. Anatomic and physiologic studies of diabetes demonstrate the existence of syphilitic lesions of the pancreas or liver. Evidence based on the specific effect of antisyphilitic treatment of infantile diabetes is uncertain and inconclusive, perhaps because of the sclerotic nature of the lesions in the pancreas, or because of the more important and pressing part played by insulin.

Chorea and Rheumatism.—Faxen studied 117 cases of Sydenham's chorea, 84 girls and 33 boys. In 91 cases the condition developed between the ages of 7 and 13. In 70 (60 per cent) a definite relationship to rheumatic infection was demonstrated, but the clinical course of cases without other rheumatic manifestations was similar to that of cases with

cardiac or articular symptoms. The majority of the cases of chorea developed during the cold season (from November to April). The small number of cases, however, does not allow a satisfactory statistical study. Study of these patients with the sedimentation reaction showed a normal rate in cases of uncomplicated chorea. This agrees with the observation of most other investigators. Usually the sedimentation rate increased with the advent of infection or endocarditis, but sometimes, in spite of complications, the rate remained normal.

Diagnostica e Tecnica di Laboratorio, Naples

5:1-88 (Jan. 25) 1934

Technic of Serodiagnosis of Syphilis According to Sciarra. V. Nicoletti. —p. 1.
Use of Orthonitrobenzaldehyde for Research of Indole in Bacterial Cultures. B. Jolles.—p. 8.
*New Method of Differentiating Between Pasteurella and Micro-Organisms of Bacillus Coli-Paratyphoid Group. U. Pagnini.—p. 15.
Best Technical Conditions for Cultures in Anaerobiosis. B. Trambusti. —p. 23.

Differentiating Between Pasteurella and the Bacillus Coli-Paratyphoid Group.—Pagnini adds two or three drops of Loeffler's methylene blue to an average test tube containing from 7 to 8 cc. of common broth. He found that Pasteurella when placed in the tube does not discolor the culture medium even after being several days in an incubator at 30 C. At most, some strains of Pasteurella give the medium a weak greenish tinge. The B. coli-paratyphoid group begins to discolor the culture medium a few hours after it has been introduced into it; after twenty-four hours, discoloration is almost complete and the medium turns a bright green. This difference in behavior of the two groups of micro-organisms is clearly manifested in twenty-four hours and often evinced after from eight to ten hours. The author observed that Pasteurella refrains not only from discoloring the medium but also from rendering it turbid, whereas the bacilli of the coli-paratyphoid group always produce discoloration and turbidity of the culture medium. Thus Loeffler's methylene blue when added to the broth does not hinder the development of the B. coli-paratyphoid group but greatly inhibits that of Pasteurella. This inhibitory action on Pasteurella may also be observed when Loeffler's methylene blue is added to a simple agar medium.

Minerva Medica, Turin

1:489-528 (April 14) 1934

Essential Hypochromic Anemia. A. Allodi, F. Penati and F. Quaglia. —p. 489.
First and Second Stage of Freyer's Operation in Prostatic Retention Patients with Cardiac Disease. P. Pariset.—p. 506.
*General Anesthesia with Ether: Symptoms of Awakening. M. Faenza. —p. 509.
*Mueller's Conglobation Reaction No. II in Blood and in Cerebrospinal Fluid. M. Santonè.—p. 512.
Narcosis with Evipan Sodium. V. Poletti.—p. 616.

Symptoms of Awakening from Ether Anesthesia.—Faenza studied 100 operative patients to whom general ether anesthesia had been administered. In forty-four the symptom of awakening was represented by lateral movements of the eyeball, in fourteen by lateral nystagmus, in thirteen by groaning, in seven by vomiting, in six by return of the pupillar reflex to light, in three by return of the corneal reflex, in two by lateral and vertical nystagmus, in one by temporary lateral nystagmus and groaning, and in nine, in addition to lateral movement of the eyeballs, there was a corneal reflex in one, lateral nystagmus in three, vomiting in two, groaning in two and a pupillary reflex to light in one. The author concludes that the period of awakening in general ether anesthesia is not marked by the return of the corneal reflex in the majority of cases but by lateral movements of the eyeballs.

Mueller's Conglobation Reaction for Diagnosing Syphilis.—Santonè tested 1,187 serums and 201 specimens of cerebrospinal fluid with Mueller's second conglobation reaction and with the Wassermann reaction. He found that in serums Mueller's reaction is 13.3 per cent more sensitive and 1.04 per cent less specific than the Wassermann reaction. In cerebrospinal fluid Mueller's reaction was less sensitive than the Wassermann reaction, but not to the degree at which it ever gave any nonspecific results. The Wassermann reaction was absolutely specific, never having given positive results in non-syphilitic fluids. In no case did Mueller's reaction show itself thermolabile, whereas the Wassermann reaction manifested its thermolability in several cases. The author states that Mueller's reaction must be considered one of the most valuable serodiagnostic methods for the determination of syphilis and as such merits adoption in the laboratory as a concomitant test to the Wassermann reaction.

Policlinico, Rome

41:109-156 (March 15) 1934. Surgical Section

Regeneration of Tunica Adventitia in Periarterial Sympathectomy of Döppler. E. Palmieri.—p. 109.
*Leotta's Sign of Perivisceral Adhesions. F. Rabboni.—p. 118.
Aneurysms of Superior Mesenteric Artery. C. Spampinato.—p. 124.
Functional Relations Between Spleen and Bone Marrow: Splenopathic Medullary Inhibition. G. Zappala.—p. 139.

Leotta's Sign of Perivisceral Adhesions.—Rabboni attempted to establish the existence of adhesions in the upper quadrant between the colon and the liver or gallbladder according to Leotta, in 100 patients presenting a right abdominal syndrome. Leotta's maneuver consists in placing the hand on the right abdominal quadrant and exerting a downward pressure with the fingers. The traction, because of a downward pull exerted on the colon below, is painful if the colon is adherent to the gallbladder or liver. The pain becomes more marked if the patient is asked at the same time to expire forcibly, causing the diaphragm to rise and to displace the liver and gallbladder upward. To establish the existence of adhesions between the ascending colon and the parietal peritoneum, the maneuver of stretching is applied to the inner part of the right half of the abdomen by making traction with the hand in a transverse direction and from the lateral aspect toward the median line. Thus, if adhesions exist between the ascending colon and the parietal peritoneum, stretching will elicit a sharp pain. The author found this sign positive in 74 per cent of patients presenting the simple right abdominal syndrome and in 100 per cent of patients whose right abdominal syndrome was complicated by gastroduodenal ulcer and cholecystitis. The validity of this test was proved at operations by establishing the presence of adhesions and their topographic localization corresponding to the direction of stretching necessary to bring out the pain. When the sign was negative, few adhesions were found and these for the most part were localized about the cecum, appendix and ileum.

41:523-562 (April 9) 1934. Practical Section

*Weltmann Coagulation Test in Pleurisy. R. D'Alessandro.—p. 523.
To Diminish Risks of Postoperative Gastric Hemorrhage. G. Cavina. —p. 530.
Echinococcosis of Muscles of Lumbar Region: Case. B. Picardi.—p. 533.

Weltmann Coagulation Test in Pleurisy.—D'Alessandro applied the serocoagulation test of Weltmann to thirty patients with pleurisy. He noticed during the exudative stage a diminution of the coagulation band or a deviation to the left, and during the stage of absorption and fibrosis a widening of the band or a deviation to the right. In two cases the deviation to the left concurred with specific lesions of the homolateral lung and of the contralateral lung and was manifested as a pleurisy due to an osseous tuberculous lesion. In exudative cases of dry pleurisy presenting symptoms of fibrosis, the coagulation band always deviates to the right, especially when the disease is regressing. In pleural diseases with fibrous involvement the widening of the coagulation band may be dependent on modifications in the protein fractions of the blood serum. The deviation of the coagulation band toward the more diluted solutions may concur with an increase in the seroproteins of this fraction at a lower electrolytic threshold. It is best to increase the more diluted solutions of calcium chloride in order to bring about coagulation. The deviation of the coagulation band to the left or to the more concentrated solutions demonstrates a diminution in the coagulability of the serum; this is observed in inflammatory exudative processes in which the cellular disintegration is more intense and the protein content therefore greater. The author states that the serocoagulation reaction of Weltmann in patients presenting pleurisy and other diseases has a practical prognostic and diagnostic value. The deviation to the right when the pleural liquid is absorbed is valuable in that it indicates another pleural

process not easily revealed by symptomatologic examination and calls attention to the development of a tuberculous process of the lung.

Revista Medica Latino-Americana, Buenos Aires

1D: 449-578 (Feb.) 1934

Immediate Sedation of Pain in Gonococcic Epididymo-Orchitis. L. A. Surraco and E. Bonnecarrère.—p. 449.
*Broadbent's Inverted Sign in Aneurysm of Left Auricle. R. Lorenzo. —p. 469.
Physiochemical Study of Photochemical Transformation of Viosterol into Vitamin D. O. F. F. Nicola.—p. 479.
Nongonococcic Urethritis. J. J. Gazzolo.—p. 517.

Sign in Aneurysm of Left Auricle.—Lorenzo describes under the name of Broadbent's inverted sign a new sign for the discovery of aneurysm of the left auricle. It consists of a localized pulsation in the lateral and posterior wall of the left hemithorax synchronous with the ventricular systole. The author reports a case in which he observed the sign and studies its pathogenesis. He believes that the auricle, greatly dilated, causes atelactasis of the lung and that its pulsations are transmitted through the lung and become perceptible to inspection and palpation on account of the impaired expansibility of the lung. The synchronism of the pulsation with the systole was due, in the author's case, to the existence of mitral insufficiency, which established a permanent communication between the ventricle and the aneurysmatic auricle. The author studies also the osseous propagation of the systolic murmurs and their displacement toward the right side. He describes the typical roentgenogram of aneurysm of the left auricle and makes especial reference to the double arch of synchronous pulsation given by the right outline of the roentgen image. He points out the advantages of the orthodiagram over the teleroentgenogram, especially because in the latter the double arch cannot be distinguished.

Archiv für Verdauungs-Krankheiten, Berlin

55: 129-248 (March) 1934. Partial Index

*Behavior of Regulatory Processes in Organism Under Influence of Repeated Administration of Histamine. O. Klein and P. Mahler.—p. 129.
*Foundations of Mucin Therapy of Gastric Ulcer. N. Henning and L. Norpoth.—p. 143.
Gastropathy. R. A. Luria.—p. 148.
Action of Hypertonic Solutions of Dextrose in Duodenum on Function of Duodenum and on Blood Sugar. K. Hoesch.—p. 173.
Read's Formula. E. Herzfeld and A. Frieder.—p. 199.
Action of Pure Alcohol on Gastric Motility. L. von Friedrich and G. A. Bokor.—p. 202.
Analysis of Gastric Secretion in Human Beings. A. Petrović.—p. 213.

Effects of Repeated Administration of Histamine.—Klein and Mahler studied the gastric juice, urine, blood, alveolar air and saliva of patients who were given four or five successive histamine injections at intervals of forty-five minutes. Then, to gain a deeper insight into the effect of the repeated histamine injections on the acid-base economy, the histamine experiments were preceded by a period of salt-free diet, by intramuscular injections of merbaphen, or by either an acid or an alkaline diet. It was found that, in persons with hypersecretion, up to 4 Gm. of chloride could be eliminated through the stomach in three and three-quarter hours. In patients with achylia, up to 2.5 Gm. of chloride, mostly in the form of neutral chlorides, is eliminated under the same conditions. This shows that the secretion of neutral chlorides can be promoted by histamine stimulation even in cases in which free hydrochloric acid is lacking. The repeated histamine injections also frequently promote the renal secretion, in the absence of fluid intake and simultaneously with the loss of fluid and chlorides through the stomach. In some persons the urinary secretion ceases rather early, while in others, particularly in achylic patients, the increased elimination of urine is so noticeable that it appears as if, in case of insufficient response of the gastric glands, the kidneys were stimulated instead. The stimulation of the renal secretion of chlorides is especially marked in persons in whom the chloride secretion through the stomach is high (hyperacidity). The fluid secretion, however, is different, in that the water elimination through the kidney is generally greatest in those persons in whom the fluid elimination through the gastric juice is slight (achylia) and vice versa. The p_H of the urine increases (greater alkalinity of urine) in cases in which there is a great loss of gastric juice and of acid. This indicates that the kidney acts as a regulator of the acid-base economy. However, under extreme histamine action this regulatory function may become exhausted. The blood chlorides show a decrease, particularly in patients with hyperacidity, and the alkali reserve of these persons frequently increases. In patients with achylia there are no such changes. The carbon dioxide tension increases correspondingly to the loss of acids. In a few cases the prolonged histamine stimulus caused a disturbance in this regulation on the part of the lungs. The injection of merbaphen and the salt-free diet changed the reaction of the organism to the repeated histamine injections in that the urine and the gastric juice revealed the loss in chlorides, and there are also changes indicative of the alkalinization of the organism by merbaphen: greater rise of the alkali reserve and of the carbon dioxide tension of the alveolar air, and percental increase in the neutral chlorides. The dietetic and medicinal modification of the acid-base economy changed the effects of the histamine action only slightly.

Mucin Therapy of Gastric Ulcer.—Henning and Norpoth employed mucin preparations in the treatment of gastric ulcers over a period of eighteen months. The favorable results induced them to study the action mechanism of the mucin. In summarizing, they state that: 1. Gastric mucin swells in water, in tenth normal sodium hydroxide and in tenth normal hydrochloric acid. 2. Mucin binds the hydrochloric acid partly by water combination and partly chemically by acid combination, which can be demonstrated in vitro and in vivo. 3. A certain amount of mucin becomes dissolved in the process of swelling in water, hydrochloric acid or sodium hydroxide, for it can be demonstrated by the determination of the protein content. 4. The viscosities of gastric juice, of hydrochloric acid, of sodium hydroxide and of water are increased in various degrees by the admixture of mucin, the highest values being obtained in gastric juice and in hydrochloric acid. 5. There was no histamine or pepsin in the examined preparations. 6. Mucin inhibits the peptic protein digestion.

Deutsche medizinische Wochenschrift, Leipzig

60: 461-498 (March 30) 1934. Partial Index

Clinical Parasitological Observations. R. Wigand.—p. 461.
Treatment of Severe Intoxications and of Central Respiratory Disturbances. H. Frank.—p. 464.
Therapy of Exophthalmic Goiter and of Bronchial Asthma. H. Handa. —p. 467.
Blood Groups and Immunity. H. Binhold.—p. 468.
*Important Reactions of Cerebrospinal Fluid for Demonstration of Meningitis and Description of New Method. J. Geldrich.—p. 472.
Parenteral Calcium Therapy. F. Schierenberg and H. Theisen.—p. 474.

Cerebrospinal Fluid Tests in Meningitis.—Geldrich emphasizes that there is no single cerebrospinal fluid reaction which alone is a reliable indicator of the presence of a meningitis, but that the demonstration of all characteristic changes is necessary for a definite diagnosis. He mentions, as the characteristic changes of the cerebrospinal fluid, increase in the protein content, in the number of cells and the lactic acid content and decrease in the sugar content. In connection with the protein content he reviews the Pandy test and the foam test of J. Pauncz, and for the determination of the increase in the number of cells he recommends the pus reaction of Waltner, which is really the Donné test applied to the cerebrospinal fluid. The demonstration of the reduction in the sugar content encounters certain difficulties, and for this reason the detection of an increase in the lactic acid content is of great importance. The lactic acid test is done according to Hopkins: Into a test tube with 5 cc. of concentrated sulphuric acid and 1 drop of saturated cupric sulphate, the author puts 0.3 cc. of cerebrospinal fluid. After shaking, the test tube is placed for from one and a half to two minutes in a boiling water bath and is cooled off under running water or in ice. Then 0.1 cc. of an alcoholic solution of thiophene is added and the test tube placed once more in the hot water bath. After the tube has been shaken for from twenty to twenty-five seconds it is rapidly cooled off. Now the reaction is read: a pink to cherry-red is positive, that is, it indicates a considerable increase in the lactic acid; however, a brownish coloration is negative. A lactic acid content of less than 20 mg. per hundred cubic

centimeters always gives a negative reaction, but if it exceeds 40 the reaction is positive. Thus the reaction is positive only if the lactic acid increase is as considerable as it is found almost exclusively in meningitis.

Jahrbuch für Kinderheilkunde, Berlin

142: 69-190 (March) 1934

Early and Late Reactions as Allergic Skin Tests: Their Theoretical and Practical Significance. O. Tezner.—p. 69.
Agranulocytosis During Childhood: Malignant Granulocytopenias with Hemorrhagic Diathesis and Subsequent Strong Myeloid Reaction. H. Willi.—p. 102.
Fulminant Meningococcic Sepsis: Etiology of Syndrome of Waterhouse-Friderichsen. P. Bamatter.—p. 129.
*Symptomatology and Therapy of Hemolytic Icterus During Childhood. M. Grob.—p. 163.

Hemolytic Icterus During Childhood.—Grob points out that the diagnosis of hemolytic icterus may give considerable difficulties in children, particularly during the so-called crises. He thinks that the higher incidence of hemolytic crises during childhood is due to the fact that, because of the greater activity of the growing organism, the equilibrium between the erythropoiesis in the bone marrow and the disintegration of the erythrocytes is more frequently disturbed. The sudden onset of the hemolysis, which leads to a crisis, not only causes an aggravation of the symptoms already present (icterus, anemia, enlargement of the spleen and so on) but also the appearance of a number of new symptoms, which make the symptomatology of the crises extremely manifold. According to the predominance of the one or the other symptom a differentiation can be made. The thermic crises are characterized by increases of temperature that frequently persist for long periods. During the crisis-free intervals the rectal temperatures are often considerably increased while the axillary temperatures are normal. The abdominal crises may simulate acute appendicitis. The hemolytic crises (in the narrower sense) frequently lead to severe anemia and to severe reactions of the bone marrow with elimination of young red cells and of white cells, so that the blood picture resembles that of leukemia. The author describes a number of cases. In one, the hemolytic icterus concurred with signs of a hemolytic diathesis (cutaneous hemorrhages, thrombopenia). Splenectomy was performed, and there followed such a tremendous increase in the blood platelets (four million) as never before has been reported. In a case of splenomegaly, the injection of epinephrine produced a 100 per cent increase in the number of blood platelets in the circulating blood. This points to a hitherto unknown function of the spleen; namely, that of being a depot organ of the blood platelets. Extirpation of the spleen was done in two cases and so far has been of lasting effect (one and a half and two years); there was even an increase in the resistance of the erythrocytes.

Klinische Wochenschrift, Berlin

13: 465-504 (March 31) 1934

Surgery and Problem of Autointoxication. M. Biehl.—p. 465.
*Determination of Specific Gravity in Human Beings. E. Rehn and K. Horsch.—p. 467.
*Varied Utilization of Trendelenburg's Phenomenon for Diagnosis of Disorders of Hip Joint and Pelvis. K. Ludloff.—p. 469.
Infectious Spondylitis with Fusion of Vertebrae. K. Middeldorpf.—p. 475.
*Treatment of Tetanus with Intravenous Application of Large Amounts of Antitoxin and with Tribrom-Ethanol Anesthesia. C. Hempel.—p. 477.
Genesis of Inguinal Endometriomas. O. Hilgenfeldt.—p. 478.
*Changes in Blood as Diagnostic Aid in Disturbances Caused by Poison Gas. O. Muntsch.—p. 482.
Experimental Contribution to Inhibition of Passage in Gastro-Intestinal Canal in Icterus. H. Schroeder.—p. 485.
Cushing's Pituitary Basophilism, Constitutional Obesity and Interrenal Virilism. E. J. Kraus.—p. 487.

Specific Gravity of Human Beings.—Rehn and Horsch describe a simple method for the determination of the specific gravity of human subjects. They use a bath tub with an especially constructed volumeter. The test should be made in the morning following evacuation of intestine and bladder. The nose is closed with a clamp, and a tube is attached to the mouth. The latter permits inspiration and expiration while the person is entirely submerged. On command, the person expels the air and holds the breath in deep expiration, and the volumeter is read. The reading may be repeated several times. The specific gravity is computed from the values of deepest expiration after deduction of the nose clamp and the tube. The authors cite the specific gravities of several persons. In a healthy man, aged 24, with a weight of 65.5 Kg., they determined a volume of 61.3 liters and consequently a specific gravity of 1.06443. A woman with thyrotoxicosis had a specific gravity of 1.09471, while a woman with endogenic obesity had a specific gravity of 0.9538. In an asthenic patient who underwent surgical treatment for an abdominal hernia the specific gravity was determined several times. Disappearance of gastric disturbances, a better food intake and improvement in the general condition, was followed by a decrease in the specific gravity (from 1.079 to 1.049). The authors think that such comparative determinations in the same person will prove to be a valuable aid.

Trendelenburg's Symptom in Disorders of Hip and Pelvis.—Following the description of a case of tabetic arthropathy, which had been erroneously diagnosed, Ludloff shows how he recognized the true nature of the condition by giving attention to Trendelenburg's symptom, which consists in the downward instead of an upward movement of the pelvis on the side of the nonsupported leg when the patient is standing on one leg. The author shows that the symptom not only is produced by an insufficiency of the median gluteal muscle, but may have several other causes. The concurrence of Trendelenburg's symptom with lordosis and luxation is indicative of congenital luxation of the hip. The concurrence of the first two in the absence of luxation indicates muscular dystrophy. Trendelenburg's syndrome alone without either lordosis or luxation indicates coxa vara. In congenital coxa vara, the Trendelenburg symptom is present and the hip joint is deformed but lordosis may be either present or absent. The concurrence of Trendelenburg's symptom and of destroyed hip joint in the absence of lordosis may indicate either tabetic arthropathy or healed tuberculous coxitis. If in case of Trendelenburg's symptom lordosis is absent, the hip joint is normal but the sacro-iliac synchondrosis is impaired, there exists either a loosening of the pelvic ring by fracture, tuberculosis or malignant tumors. The detection of the Trendelenburg symptom together with the anamnesis will often permit a definite diagnosis of disorders of the hip joint and the pelvis, but these diagnoses should of course be verified by inspection and roentgen examination.

Treatment of Tetanus.—At his clinic, in Marburg, Hempel adheres to the intravenous injection of large doses of antitoxin in combination with tribrom-ethanol anesthesia. This method was employed in five cases. The author describes the clinical history of a boy, aged 6, in whom the tetanus developed after an incubation period of ten days. Hospitalization was not done until three days after the onset of the symptoms of a severe, generalized tetanus. The prognosis seemed unfavorable. Tribrom-ethanol anesthesia was induced (0.08 Gm. for each kilogram of body weight [20 Kg.]). Immediately after anesthesia set in, the wound was excised, injections of tetanus serum were made around it and a sterile bandage was applied. In the course of fifteen days the patient received in all 52.7 Gm. of tribrom-ethanol (increased doses at the later injections, 0.1 and 0.125 for each kilogram of body weight). The total number of antitoxin units was 720,000. During the first four days 480,000 units was given intravenously, and during the subsequent days the other 240,000 units was administered intramuscularly. At the end of the treatment there was still a certain stiffness in the extremities and in the back. The walk was insecure, and motor pareses existed in both legs, particularly in the region of the peroneus. These disturbances disappeared gradually and after forty-nine days the patient was discharged completely cured. Of the other four patients treated with this method at the author's clinic, two died and two recovered. In those who died the incubation period was comparatively short, being four and six days, respectively.

Changes in Blood in Disturbances Caused by Poison Gas.—Muntsch discusses the changes caused by the poison gases of the green cross (phosgene) group and by the yellow cross (mustard gas-dichlorethylsulphide) group. He describes animal experiments he conducted with phosgene. He observed that during the first half hour after intake of the phosgene the

hemoglobin content increases slightly. During the following three hours it remains about the same or even decreases slightly, but beginning with the fourth hour it increases rapidly and reaches a maximum before the end of twenty-four hours; then it gradually decreases, and at the end of seventy-two hours again has reached the normal level. The number of erythrocytes runs practically parallel with the hemoglobin content. The rapid increase of both the hemoglobin and the erythrocytes sets in when the symptoms of pulmonary edema become manifest; before that the increase is so slight that a differentiation from the normal is almost impossible, and for this reason the determination of the hemoglobin content and of the number of erythrocytes is of no value for the early diagnosis. In studying the leukocytes the author observed a lymphopenia, a deviation to the left, but he admits that for an early diagnosis the studies on the leukocytes are of little value because they require too much time. The changes resulting from the loss of plasma in cases of phosgene poisoning are of great significance. There is a considerable increase in the inspissation and in the viscosity and the coagulation is accelerated. Attention was given also to the sedimentation, and shortly after the poisoning it was found that the speed increased slightly. The author thinks that, although the sedimentation speed alone cannot serve as a basis for the diagnosis, it is nevertheless a valuable diagnostic aid in phosgene poisoning. He reports his studies on the hematic changes in poisoning with mustard gas (yellow cross), dichlorethylsulphide. He found that poisoning with vapors of mustard gas produces in the blood changes similar to and perhaps even more severe than those that develop when the fluid substance acts on the skin. The number of erythrocytes and the hemoglobin content decrease, a temporary neutrophilia is followed by a neutropenia, and a passing lymphopenia by a lymphocytosis. There also is an eosinopenia, special forms of granulocytes appear and the segmented nuclei tend to degenerate. The blood picture presents essentially the same three phases (neutrophilia, monocytosis, lymphocytosis) that characterize an infection (Schilling's biologic curve of leukocytes). The sedimentation speed always shows an increase, which as a rule becomes noticeable three or four hours after the poisoning. The author emphasizes that in gas poisoning the blood picture reveals dangers as well as a favorable course, and he hopes that these studies on the blood will form a basis for new therapeutic methods, at least for poisoning by mustard gas.

13: 504-544 (April 7) 1934

Significance of Hereditary Research for Pathology. F. Curtius.—p. 505.
Anti-Inflammatory Diet. C. von Noorden.—p. 507.
*Exogenic Causal Factors in Diabetes Mellitus. H. Curschmann.—p. 511.
Significance of Regulation of Venous Pressure for Pathology of Circulation. S. Dietrich and H. Schwiegk.—p. 514.
Coordination of Sympathetic Regulations. F. Hoff.—p. 519.
Influence of Organ Extracts on Blood Pressure in Human Beings: Action of Liver Preparations in Intravenous Injection. H. A. Heinsen and H. J. Wolf.—p. 523.
Benign Neoplasms of Lung. A. Böger and K. Voit.—p. 526.
*Changes in Blood as Diagnostic Aid in Disturbances Caused by Poison Gas. O. Muntsch.—p. 529.

Exogenic Causal Factors in Diabetes Mellitus.—Curschmann points out that the rôle of the exogenic factors in the etiology of diabetes mellitus is still in dispute. His opinions are based on more than 400 cases. He thinks that the assumption of a syphilitic etiology of diabetes mellitus has an uncertain basis. In regard to the causal significance of tuberculosis he says that in case of concurrence of the two disorders in his series of cases tuberculosis always was the primary and diabetes mellitus the secondary disease. He denies the etiologic significance of occupation, mode of living and race. He considers the abuse of alcohol of no particular etiologic significance but thinks that excessive use of tobacco may at least lead indirectly to diabetes by promoting the development of arteriosclerosis. Carbon monoxide poisoning occasionally may lead to diabetes mellitus. The author observed two such cases, and in this connection he calls attention to the traumatic, particularly the neurotraumatic, etiology of diabetes mellitus. He thinks that cerebral physical traumas as well as psychic traumas should be recognized as possible eliciting factors of diabetes mellitus and that absolute rejection of a neurotraumatic pathogenesis is not justified.

Medizinische Klinik, Berlin

30: 353-384 (March 16) 1934

Clinical Aspects of Allergy in Infectious Diseases. F. Hamburger.—p. 353.
Etiology and Treatment of Acne Rosacea. P. Linser.—p. 357.
Potassium Group. R. Keller.—p. 358.
Nature and Significance of Care for Drunkards. E. Gabriel.—p. 361.
Psychotherapeutic Method. E. Fröschels.—p. 366.
*Blood Transfusions in Septic Diseases and in Ulcerative Colitis. F. Sinek.—p. 368.
Autovaginoscopy. E. Bergmann.—p. 369.
*Abnormal Digestive Substances as Cause of Inflammatory Periarticular Changes. E. Freund and Eva Kolmer.—p. 371.

Blood Transfusions in Ulcerative Colitis.—Sinek made careful studies on the efficacy of blood transfusion in various conditions and reaches the conclusion that in cases of ulcerative colitis blood transfusion can be recommended but that expectation should not run too high. He found that blood transfusion had no effect in sepsis and in endocarditis lenta and that its efficacy was not quite convincing in typhoid.

Digestive Substances in Inflammatory Periarticular Changes.—Freund and Kolmer decided to study in mice the influence of extracts from stools of patients with articular rheumatism. They describe the preparation of the extracts, of which from 0.4 to 0.6 cc. was subcutaneously injected into mice. Controls were treated in the same manner with extracts of stools from normal persons. Whereas the mice injected with the latter extract showed practically no changes, those injected with stool extract from rheumatic patients showed a reduced mobility; namely, a dragging of the hind legs and often swelling on the knee joints. These changes persisted for several days but then subsided gradually. The experiments were made on stools from twenty-three rheumatic patients (sixty-seven mice) and on six stools from normal persons (fifteen mice). In six rheumatic patients the results were negative, but in these patients the rheumatism was not in an acute stage. The histologic pictures did not unequivocally represent the aspects of rheumatism, but the authors point out that this could hardly be expected from a single product of the digestive activity, and they think that the results might be different if the abnormal products of digestion could be made active for longer periods by introduction directly into the intestine. They plan further studies along this line.

Monatsschrift für Kinderheilkunde, Berlin

50: 321-400 (March 21) 1934

Diagnostic Significance of Muck's Epinephrine Probe Test in Children. K. E. Gierlichs.—p. 321.
Influence of Gastric Juice on Hematopoiesis in Rats. Johanna Engberding.—p. 332.
*Cause and Incidence of Albuminuria in Young Persons. H. Nowak.—p. 341.
Significance of Determination of Blood Protein in Dysentery During Childhood. E. von Frölich and B. von Gözsy.—p. 352.
*Newer Points of View in Medicinal Treatment of Epilepsy. E. von Lederer.—p. 359.

Albuminuria in Young Persons.—To obtain an insight into the incidence of orthostatic albuminuria, Nowak gave especial attention to the examination of the urine in 4,500 persons, aged from 14 to 17 years, who were examined for occupational fitness. He discovered albuminuria in 560, that is, in 12.4 per cent of the young people. Of these, 524, or 11.6 per cent, had orthostatic albuminuria and 36, or 0.8 per cent, had a chronic renal disorder. Of the 524 with orthostatic albuminuria, 248 had a noticeable lordosis but the other 276 had disorders that would, like lordosis, lead to circulatory disturbances of the kidney. This latter group presented aspects indicative of weakness in the muscular, connective, cartillaginous and bony tissues, greater susceptibility to catarrhal infections and conditions such as excessive growth in height, neuropathic predisposition, severe dental caries and pulmonary or otic disorders. The author shows in a number of cases how gradual may be the transition from anephritic to nephritic albuminuria.

Treatment of Epilepsy.—Von Lederer says that in the pathogenesis of epilepsy two factors play a part: (1) the irritative epileptogenic noxa (congenital, heredogenerative, traumatic, inflammatory or sclerotic changes, toxicoses, tumors and disturbances in the circulation of the blood and the cerebro-

spinal fluid) and (2) a reduced spasmodic threshold (increased spasmophilia). The latter factor may be predominating in hormonic disturbances (hormonic dysfunction, puberty, menopause), during early childhood, at the beginning and end of a sleeping period and after eating. The treatment may be aimed at one or the other of these factors; various surgical interventions for the removal of traumatic and inflammatory sequelae or of tumors for the first and various medicaments to increase the spasmodic threshold for the second factor. The author observed that the customary bromine-phenobarbital medication failed in many cases and he resorted to the use of vasodilatory hormone preparations, the so-called circulatory hormones, that are obtained from striated muscles or from the pancreas. The trials with these hormones seem to indicate that the peripheral (cerebral) vascular spasm is one of the important irritative epileptogenic factors, and that whenever the sedatives do not bring the desired results the circulatory hormones should be tried. The fact that in some cases of epilepsy the circulatory hormones proved ineffective does not prove the theory erroneous but only shows that in these cases the vascular spasm is not the eliciting cause. He cites a case in which most likely an injury of the brain was the causal factor.

Münchener medizinische Wochenschrift, Munich

81: 387-424 (March 16) 1934. Partial Index

Treatment of Sleep Disturbances. O. Wuth.—p. 387.
*Practical Experiences on Prevention of Inferiority. G. Bonne.—p. 391.
Treatments of Laryngeal Tuberculosis and Their Results. A. Brüggemann.—p. 393.
Evipan Sodium (Sodium Salt of a Barbituric Acid Derivative) for Intravenous Complete Anesthesia. R. Decker.—p. 395.
Spontaneous Cure of Case of Ozena. O. Bergmann.—p. 397.
Weather and Disease. P. Köhler.—p. 397.
Medical Expert Testimony in Social Insurance. J. Weicksel.—p. 398.
Experiences in Treatment of Eclampsia with Pernocton (Solution of Sodium Salt of Secondary Butyl-Beta-Bromallyl-Barbituric Acid). H. Goecke.—p. 402.
*Treatment of Wounds with Resin Ointment. Müller-Meernach.—p. 405.

Prevention of Inferiority.—Bonne stresses the rôle played by alcohol, nicotine and syphilis in the degeneration of the offspring. He realized the importance of these factors in the development of inferiority not only in the course of his long private practice (forty-seven years) but also in studies on approximately 1,000 criminals. He relates the histories of twenty families in which inferiors of various types, such as idiots, epileptic persons, problem children, deaf-mutes, children subject to convulsions, homosexuals and criminals appeared, and in which he was able to trace the degeneration to syphilis, to the addiction to alcohol and nicotine, or to the fact that the child was conceived at a time when one or both of the parents were under the influence of alcohol. Fatigue, starvation, anxiety and addiction to morphine, cocaine or other narcotics may likewise lead to a disturbance in the psychic equilibrium of a person or his offspring, but the author ascribes the greatest influence to the three factors named. The theory that drunkenness as such is a manifestation of degeneration is rejected by him, although he admits that an inferior conceived during intoxication may likewise become a drunkard. He thinks that in most instances drunkenness is a psychic infection, produced under the narcotic influence of alcohol. He gained the impression that an asocial disposition, an inclination to criminality and homosexualism are frequently the result of chronic abuse of tobacco. He shows that by reducing the addiction to alcohol and to tobacco the economic crisis has exerted a beneficial effect, in that the incidence of idiocy and of other inferiorities has noticeably decreased. He considers the sterilization of the inferiors a step in the right direction, but he emphasizes that the attention of the people must also be directed to the injurious effects that alcohol, nicotine, syphilis and so on may have on the health of the offspring.

Treatment of Wounds with Resin Ointment.—Müller-Meernach first resorted to the use of resin during the war, when he ran out of balsam of peru. He made an ointment of equal parts of resin from larch trees (Terebinthina larcina) and petrolatum, and he found it highly effective in the treatment of wounds. Now, after almost twenty years' experience with this ointment, he is convinced that this simple preparation makes all other ointments for wound treatment superfluous, although he did not neglect to try the various products of the chemical industry that were put on the market in the course of the years. He applied the ointment to surgical wounds, to wounds caused by accidental injuries and to acute suppurating wounds and abscesses, following their surgical treatment. Moreover, he found that the ointment stimulated the formation of granulations in wounds that had a tendency to slow healing.

Wiener klinische Wochenschrift, Vienna

47: 353-384 (March 23) 1934. Partial Index

Spondylitis Deformans. F. J. Lang.—p. 360.
Symptomatology of Sciatica. S. Erben.—p. 367.
*Ready Prepared Dried M and N Test Serums. M. Eisler.—p. 369.
Diagnosis and Therapy of Diseases of Vulva and Vagina. T. Antoine.—p. 370.

Prepared Dried M and N Test Serums.—Eisler points out that normal human serums (iso-agglutinins) are not used for the detection of the M and N factors, but rather immune agglutinins obtained by treating rabbits with human corpuscles that contain the factor in question. The author calls attention to numerous difficulties encountered in the preparation of these agglutinins and states that, after the test serums have been prepared, there arises the problem of keeping them effective for longer periods. Since in the fluid state they can be preserved for only a comparatively short time, the author decided to dry them, and he found that, when this was done, they were still effective after storage for about a year. These dry serums will make the determination of the M and N factors possible in laboratories that are not equipped for the preparation of the immune agglutinins.

Zentralblatt für Chirurgie, Leipzig

61: 721-784 (March 31) 1934

Late Blood Picture After Extensive Stomach Resections. W. Rieder.—p. 722.
Method of Extirpation of Rectum of Sacral Route. O. Orth.—p. 724.
Results with "Pantocain-L" High Spinal Anesthsia. A. Schmechel and O. Boden.—p. 725.
*Indication for Removal of Vasoconstrictors in Diseases of Extremities. W. Rieder.—p. 734.
Dangerous Duodenal Hemorrhage Resulting from Portal Thrombosis. I. Philipowicz.—p. 733.
Scapular Crepitation. F. Krauss.—p. 742.
Etiology of Postoperative Pulmonary Complications. F. Koch.—p. 745.
Composite Extension Outfit for Extension Bed, Splints and Extension Table. E. Heller.—p. 747.
Preoperative and Postoperative Treatment, Blood Transfusion. J. Volkmann.—p. 762.

Indications for Removal of Vasoconstrictors in Diseases of Extremities.—Rieder had excellent results with ramisectomy combined with sectioning of the sympathetic fibers in allaying the pain and delaying or entirely preventing gangrene in vasomotor disturbances of the extremities. The failures in his material as well as in the reports in the literature are, in his opinion, the result of faulty indication for operative intervention. Elimination of vasoconstriction can be effective only when the underlying condition is essentially on a vasoconstrictor basis. Constriction of the arteries of the skin leads to diminution in the volume of blood circulating in it and to lowering of its temperature. Organic occlusion of an artery can no longer be influenced by sympathectomy. The problem is to estimate before the operation the dilating capacity of the vessels. The question of hyperemia reaction can be tested by anesthetizing the nerves running to the extremity or, still more effectively, by anesthetizing the brachial plexus when studying the upper extremity and by spinal anesthesia for the study of the vessels of the lower extremity. The author's experience with this diagnostic procedure in a large number of cases convinced him of its validity. If the test results in a definite hyperemia and hyperthermia instead of coldness and cyanosis of the limb, the sympathectomy as a rule will be effective. The positive test is followed at once by the operation, since the duration of spinal anesthesia is not less than two hours. Exact measurements of the skin temperature are essential. One could expect no beneficial results from the operation if the rise of temperature was less than one degree. The author made an interesting observation; i. e., that brachial plexus anesthesia of one side sometimes produced hyperemia and

hyperthermia of the opposite side. This corresponds with the clinical observation that unilateral sympathectomy may bring about a temporary improvement in the opposite side. The author does not agree with the opinion that a complete removal of sympathetic fibers paralyzes the vessels. He showed in his microcapillary studies that the capillary reflex remained intact and that it could be elicited by external stimuli. The regulating mechanism remains unaltered, since the autonomic nerve plexuses reside within the blood vessels. The peripheral nerve plexuses are independent to so high a degree that in spite of the removal of the corresponding ganglions and of sympathetic branches combined with a periarterial sympathectomy they continue to regulate the peripheral circulation and to dilate or to constrict the vessels according to the needs of the peripheral circulation. They are autonomic in the fullest sense of the word. The rise of temperature may persist for years. The periarterial sympathectomy alone is incapable of bringing about such results. The author cites several histories with appended skin temperature charts to show that when the anesthesia test resulted in a rise of skin temperature of three or more degrees the operative results were gratifying. To the contrary, no benefit followed the operation when the skin temperature rise was less than one degree.

Zentralblatt für Gynäkologie, Leipzig

58: 673-720 (March 24) 1934

Treatment of Dangerous Venous Hemorrhages in Urinary Bladder. A. Baurreisen.—p. 674.
Urethral Calculus Removed by Vaginal Route. S. Szenteh.—p. 678.
Urinary Bladder in Ray Therapy of Uterine Carcinoma. W. Kerchow. —p. 681.
*Treatment of Urinary Incontinence in Women. E. Santi.—p. 685.
Results of Functional and Radiologic Examination in Ureteral Anastomosis. A. Esat.—p. 689.

Treatment of Urinary Incontinence in Women.—Santi states that in 1919 he described a simple method for the restoration of the destroyed urethra. Since this report received little attention and since in the meantime his own experiences, as well as those of other Italian surgeons, have proved that the method produces good permanent results, he calls attention to it once more. He stresses the following as the main aims of his method: (1) narrowing of the urethral tube, (2) the utilization of certain factors that permit the formation of valves, (3) the lengthening of the tube that facilitates the discharge of the urine, and (4) the strong curvation or even double curvation of the newly formed urethra. He forms a new channel in the anterior soft portions of the vulva, and this channel lengthens the original urethra or what is left of it.

Sovetskaya Vrachebnaya Gazeta, Liningrad

Feb. 28, 1934 (No. 4) pp. 241-320. Partial Index

Eye Diseases of Dental Origin. P. P. Lvov.—p. 247.
Unobserved Factor in Colds. A. E. Ewens.—p. 253.
Diagnosis of Ulcer Disease. I. M. Fiekel.—p. 258.
Injuries of Knee Joint. N. A. Sinakevich.—p. 263.
Roentgen Therapy of Endocarditis and Myocarditis. B. A. Egorov. —p. 267.
Serodiagnosis of Syphilis. M. P. Izabelinskii and P. B. Podvalnaya. —p. 270.
*Tenderness of Left Supra-Orbital Nerve as a Sign of Previous Malaria. P. K. Bereskin.—p. 307.

Tenderness of Left Supra-Orbital Nerve as Sign of Previous Malaria.—Bereskin states that in the course of forty years of practice he has observed, with few exceptions, tenderness of the left supra-orbital nerve in patients who gave a history of malaria. The shorter the period since the last attack, the more pronounced was the tenderness. It was always more pronounced in patients with an enlarged spleen. The test is carried out by exerting a gentle pressure simultaneously on the supra-orbital nerves at the point at which they emerge from the supra-orbital notch. This "supra-orbital phenomenon" is analogous to the phrenicus phenomenon of pain of the right shoulder in diseases of the gallbladder. It is probably not a neuralgia due to malarial toxemia, since it has no periods of exacerbation and since it does not explain the predilection for the left side. The more likely explanation is to be sought in stimuli proceeding from the pathologically altered spleen. The symptom should prove of value in clearing up obscure cases of hepatitis and splenic involvement.

Hospitalstidende, Copenhagen

77: 241-268 (Feb. 27) 1934

*Investigations Concerning Carbohydrate Tolerance in Carbohydrate Hunger. N. I. Nissen.—p. 241.
Tuberculosis in Sacro-Iliac Articulation. H. Thomsen.—p. 253.
Evipan Sodium Anesthesia. J. Nordentoft.—p. 261.

Carbohydrate Tolerance in Carbohydrate Hunger.—Nissen's experiments showed that, after a few days without carbohydrate administration or with restricted administration on a diet either low or high in calories, a disturbance appeared in the carbohydrate metabolism. There was a fall in the fasting value. Renewed administration of carbohydrate by oral and intravenous application of dextrose resulted in an abnormally high and prolonged alimentary hyperglycemia and marked glycosuria; a transient difference, as a rule less than normal, was seen in the alimentary sugar content in arterial and venous blood. Oral administration of galactose was followed by a galactosemia, too high and too long continued, accompanied by galactosuria; the course of the assimilation curve was not affected after intravenous injection of galactose. The degree of the disturbance seemed to be independent of the intensity of the acidosis and was more marked on a diet low in calories. It is ascribed to a deficient or delayed glycogen synthesis in the liver and the peripheral tissue, possibly together with disorder in the utilization of the administered carbohydrate.

77: 269-296 (March 6) 1934

*Investigations on Basophil Substance in Red Blood Corpuscles and Their Structure by Staining with Yellow Cyaninchromalum. J. Steffensen.—p. 269.
Nutrition Anemia in White Rats and Its Treatment with Iron and Copper. E. E. Fog.—p. 284.

Basophil Substance in Red Blood Corpuscles.—Steffensen stained smears from well and sick persons with yellow cyaninchromalum. The red blood corpuscles were hemolyzed and assumed a peculiar granulated appearance. The method seems to him especially suitable for staining the basophilic substance in the red corpuscles, particularly the stippling, and preferable to staining with borax-methylene blue (Manson) in demonstrating the stipple cells because of greater delicacy. The coagulation products produce the stippling. The yellow cyaninchromalum method most closely resembles supravital staining, with the advantage that it indicates both the quantity and the quality (i. e., the shifting to the left) of the basophil substance. The white blood corpuscles are also especially well stained by the combined yellow cyaninchromalum-Leishman method.

77: 297-324 (March 13) 1934

Medical Treatment of Exophthalmic Goiter, with Especial Reference to Iodine Treatment. E. Moller.—p. 297.
*Silicosis Among Metal Grinders. S. V. Gudjonsson.—p. 313.
Secondary Pellagra: Three Cases. Ellen Vibeke Jensen.—p. 319.

Silicosis Among Metal Grinders.—On roentgen examination of 186 metal grinders, Gudjonsson found 51, or 27.4 per cent, with silicosis in different stages, mostly in milder forms. The frequency of the silicosis among the workers depended primarily on the length of time of exposure, and older persons were perhaps more susceptible. There was no roentgenologically demonstrable recent tuberculosis in the material.

Ugeskrift for Læger, Copenhagen

96: 293-318 (March 15) 1934

Scleroderma and Chronic Polyarthritis. S. Petersen.—p. 293.
Diphtheria in Vacation Colony. F. Ingerslev.—p. 295.
Intoxication with Liquid Asphalt: Case. A. Schiermacher.—p. 296:

Scleroderma and Chronic Polyarthritis.—From the history and objective results, particularly the positive Zondek-Aschheim reaction, in his case of scleroderma and polyarthritis Petersen concludes that the ailments are an expression of changes in the pituitary body and the vegetative centers in the hypothalamus.

96: 341-358 (March 29) 1934

Evaluation of High Blood Pressure: Cont. E. Rosling.—p. 341.
*Insulin Coma in Pregnant Diabetic Patient. N. S. Jacobsen.—p. 347.

Insulin Coma in Pregnant Diabetic Patient.—Jacobsen's patient, without the control of a physician, increased her carbohydrate consumption and lowered her insulin dosage during the last half of her pregnancy. Grave insulin coma, however, set in shortly before delivery. The child was stillborn. Its suprarenals were normal but the pancreas showed a greatly increased number of moderately enlarged islands. The increase is regarded as compensatory.